CRITICAL ASSESSMENT OF THE SUSTAINABILITY OF THREE COMMUNITY-BASED INTERVENTION PROGRAMS TO IMPROVE CHILD NUTRITION IN THE PERUVIAN HIGHLANDS

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CRITICAL ASSESSMENT OF THE SUSTAINABILITY OF THREE COMMUNITY-BASED INTERVENTION PROGRAMS TO IMPROVE CHILD NUTRITION IN THE PERUVIAN HIGHLANDS

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Immense expenditures support programs to prevent malnutrition, a global disease burden impairing performance, health and survival. Most programs are funded for 3-5 years and expected to obtain other resources for permanent and self-sustaining continuation. This thesis examines sustainability in 3 community-based child nutrition programs in the highland regions of Peru. The study aims were to: (1) examine different forms of program logic and elucidate program impact pathways (PIPs), (2) determine types and degrees of program sustainability, and (3) elucidate contextual factors that influence sustainability.

We analyzed program documents, observed program activities in action, and conducted 20 semi-structured interviews with national, regional and local staff, in order to construct PIPs of key activities and examine them with program logic models. PIPs were a useful tool for mapping causal connections required for impact. Given the partial conceptual and operational knowledge among staff, communication across operational levels may lead to better understanding of causal mechanisms.

Data collection for the sustainability assessment was conducted 1-4 years after project termination, and included 103 interviews with implementers and 28 focus groups with mothers in 28 communities, across the 3 different programs.

To assess the degree of sustained activities, we adapted Pluye and colleagues' (2004) program sustainability framework based on organizational theory and operationalized characteristics of routinization (resources, adaptations, values and rules) and standardization (institutional standards). We found that the initial programs had disintegrated in all communities. However, a few activities

continued in 9 communities at weak or medium sustainability levels, demonstrated by non-routinized or routinized activities without standardization.

To determine factors associated with sustainability, we adapted Shediac-Rizkallah and Bone's (1998) framework for conceptualizing program sustainability. We identified common influential factors related to the initial program (broader community participation, positive perception of program impact, and intentional actions at exit), organizational factors (integration, external coordination, higher skills level and training, positive perceived value of work, strong work motivation, and champions for child nutrition), and community factors (perception of problem, integration, valuing of child nutrition, and champions).

This research provides methods useful for evaluating sustainability and for potentially improving program design and implementation for sustainability.

BIOGRAPHICAL SKETCH

Sunny Sunghee Kim was born in Busan, South Korea. After her family immigrated to the United States in 1980, Sunny spent most of her childhood in Arcadia, California. She graduated from the University of California, Berkeley in 1996 with a Bachelor of Arts in Molecular and Cell Biology. As an undergraduate student, Sunny became interested in public health and working with diverse communities while serving as a labor coach/patient advocate and Korean language translator for newly-immigrated women at the Asian Health Services in Oakland, California, and during church mission trips to aid agricultural communities in northern Mexico. Inspired to study international public health, Sunny attended the George Washington University School of Public Health and Health Services, where she completed a Master of Public Health in International Health Promotion in 1999.

From 1998 to 2005, Sunny worked in the Nutrition Unit at the regional office of the Pan American Health Organization (PAHO/WHO) in Washington, D.C., where she served as the technical officer in the area of micronutrients. At PAHO, Sunny was involved in developing, monitoring and evaluating national intervention programs, primarily prophylactic supplementation and staple food fortification programs, and related policies to prevent micronutrient deficiencies in various Latin American countries.

In 2006, Sunny joined the Program in International Nutrition at Cornell University Division of Nutrition Sciences, in order to pursue further inter-disciplinary academic and research training in international public health nutrition.

For my parents.

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My life path consists of steps taken with frequent nudging and prodding (both mentally and physically) by many wise and thoughtful friends, acquaintances, teachers, coworkers, bosses, mentors, and family members. I am grateful to so many people who see things in me that I do not see in myself (and tell them to me) and encourage me to take a step forward.

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LIST OF ABBREVIATIONS

ADRA	Adventist Development Agency
BF	Breastfeeding
CBO	Community-based organization
CODECO	Comité de Desarrollo Comunal (Community development committee)
CHA	Community health agent
DISA	Dirección Regional de Salud (Regional Health Department)
EBF	Exclusive breastfeeding
GDP	Gross domestic product
GMP	Growth monitoring and promotion
IFPRI	International Food Policy Research Institute
JASS	Junta Administradora de Agua y Saneamiento (Water board)
MIMDES	Ministerio de Mujeres y Desarrollo Social (Ministry of Women and Social Development)
MINAG	Ministerio de Agricultura (Ministry of Agriculture)
MINSA	Ministerio de Salud (Ministry of Health)
MOH	Ministry of Health
NGO	Nongovernmental organization
NIH	National Institutes of Health
OECD/DAC	Organization for Economic Cooperation and Development/Development Assistance Committee
PIN	Programa Integral de Nutrición (Integrated Nutrition Program)
PIP	Program impact pathway
PIPA	Participatory impact pathways analysis
PNI	Programa de Nutrición Infantil (Child Nutrition Program)
REDESA	Redes Sostenibles de Seguridad Alimentaria (Sustainable Networks for Food Security)
SIVICO	Sistema de Vigilancia Comunal (Community surveillance system)
SIVICOMI	Sistema de Vigilancia Comunal Materno-Infantil (Maternal and child community surveillance system)
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development

CHAPTER 1:

INTRODUCTION

1.1 Problem Statement

Child undernutrition contributes to more than one-third of child deaths and 11% of the total disease burden globally [1, 2]. Governments, donors, UN agencies, international to local NGOs, and communities invest considerable resources toward various intervention strategies to combat this major public health problem. Furthermore, improving child growth and nutrition requires both *short-* and *long- route* interventions implemented among target populations and sustained over an extended period of time [3]. Short routes such as direct interventions to improve knowledge and practices related to child health, care, and nutrition, as well as to provide immediate basic resources are necessary to stem and prevent the problems of poor growth and child malnutrition. Long routes that address the basic causes of malnutrition by improving the living conditions and quality of life of families and communities usually require more time and broader partnerships, but should supplement direct interventions and are essential for generating support to caregivers and for long-lasting effects [4].

While the primary focus among program actors has traditionally been on determining effectiveness and efficiency, the question of sustainability is an increasing concern and becoming a desired goal everywhere in the face of scarce resources [5-7]. What happens after the initial funding for programs expire? Do the programs end, continue, or expand to new sites or beneficiaries? Often, sources of funding exist for "demonstration" projects, typically for a few years – usually three to five years – and then, they are expected to obtain other resources for continuation [8]. It is expected that the program impact be permanent and self-sustaining, so that further program inputs are no longer required, or that the program and its activities be taken over by the community or transferred to a government entity or other permanent organizations, or a combination thereof. Also, there is the question of what is sustained and the extent of sustainability.

1.2 Surging Literature on Program Sustainability

Attention to sustainability of programs and innovations in the health sector and health-related fields is increasing, demonstrated by the growing body of literature. A general search through all database types ranging from the biological to social sciences[1] of the key words "health program sustainability" resulted in three times more published articles in the period 2005 to 2011 than 1995 to 2004. To date, there are five published reviews of empirical studies related to the sustainability of health-related programs [8-12]. A summary of the five reviews and their findings of concepts related to program sustainability are presented in Table 1.1.

Table 1.1 Reviews of multiple programs and factors related to sustainability

Reviews of empirical studies	**Sample**	**Concepts related to program sustainability**
Bossert (1990) [9]	5 health projects in Central America and Africa	Effectiveness in reaching clearly defined goals and objectives; integrated activities into established administrative structures; gained substantial funding from national sources during the project life; negotiated project design with a mutually respectful process; included a strong training component; tailored to contexts; and strengthened institutions.
Evashwick and Ory (2003) [10]	20 programs on health and social support to elderly people in USA	Importance of leadership, financing, organizational structure, governance, marketing, and evaluation or research.
Pluye et al. (2004) [11]	34 studies on health promotion initiatives in USA and Canada	Institutionalization is a combination of organizational routines and institutional standards; three degrees of sustainability – weak, medium, and high; planning for sustainability needs to start early.
Scheirer (2005) [8]	19 studies of sustainability in USA and Canada	Five important factors: program can be modified over time; champion is present; program fits with organizational mission and procedures; benefits to staff members or clients are readily perceived; and stakeholders in other organizations lend support.
Gruen et al. (2008) [12]	84 studies of health program sustainability (24 reports from low-income and middle-income countries or disadvantaged populations in high-income countries)	Sustainable health programs are complex systems that include programs, health problems targeted by programs, and program's drivers or key stakeholders, all of which interact within a given context.

(Updated and adapted from Gruen et al., 2008 [12])

[1] Search results of relevant articles via Cornell University's EBSCOhost search interface under all databases on November 3, 2011.

Bossert (1990) conducted a seminal review of five-country case studies of the sustainability of USAID-funded health projects in Central America and Africa, which determined the extent of project continuation after termination of donor funding, and the project characteristics and context related to sustainability [9]. The review found that the projects in Africa were less sustained than those in Central America, largely inhibited by the weak economic and political context of the African cases [9]. Also, the review identified project characteristics related to sustainability (Table 1.1).

The reviews conducted by Evashwick and Ory (2003), Pluye and colleagues (2004), and Scheirer (2005) involved health-related programs in North America [8, 10, 11]. Evashwick and Ory studied the characteristics of organizations that sustained health programs for older adults over time, using a structured questionnaire based on Shediac-Rizkallah and Bone's framework for conceptualizing program sustainability [5, 10]. Most studies in Scheirer's review used survey methods and took an inductive approach of describing differences between high and low and non-sustained sites, and the author classified the findings under the factors suggested by Shediac-Rizkallah and Bone [5, 8]. Pluye and colleagues took an organizational perspective, and their review focused on the social structures within which programs are sustained and the temporal aspect or timing of sustainability [11].

In the review by Gruen and colleagues, the authors identified various outcomes of sustainability related to services, health effects (usage, incidence, and prevalence), and capacity-building, and a wide range of influential factors. The authors concluded that health programs are complex systems and proposed a general model of health program sustainability as an ecosystem, which includes health concerns, program elements, and key stakeholders [12].

Despite the uncontested importance of sustainability and the growing literature on the subject, the five reviews similarly confirmed the profusion of terminology or synonyms for sustainability, lack of a shared research paradigm, and lack of a shared set of methods for measurement and analysis among studies of program sustainability [8-12].

1.3 Gaps in the Literature

Within the growing literature on program sustainability, a number of gaps still remain. And in general, the study of program sustainability in developing country settings is very limited.

1.3.1 Gap in empirical evidence to support integrated sustainability frameworks

Different research traditions and perspectives view sustainability differently, from which stems the myriad of synonyms such as *adoption, appropriation, continuation, durability, incorporation, institutionalization, integration, maintenance, nesting, permanence, resilience, routinization, stability,* and *viability*, among others [5, 11, 12]. From a health sector perspective, sustainability is emphasized as the maintenance of health benefits over time [5, 8]. The focus on organizational change and innovation has led to the definition of sustainability as continued program delivery [5, 8]. And the community development perspective focuses on the capacity of communities and individuals to maintain changes in behavior [5, 8]. However, the sustainability of health promotion and nutrition intervention programs is relevant across all these perspectives. And while bodies of literature branch and develop from the different research perspectives, an integrated perspective rather than isolated ones facilitates shared research paradigms. In this respect, Shediac-Rizkallah and Bone's model of sustainability, which includes project design and implementation factors, factors within the organizational setting, and factors in the community environment, is recognized as the most inclusive framework for studying the influential factors in the sustainability of health intervention programs [5]. Yet, there is a need for empirical studies to adapt or reinforce this and other integrated frameworks for program sustainability in different contexts.

1.3.2 Gap in the method of assessment

Given the wide range of perspectives on sustainability, the methods for assessing the types and extent of sustainability are also various. In relation to the outcome of program continuation or continued program delivery (rather than health effects and capacity-building outcomes), the measure is often

insufficiently specified. Studies focused on this outcome often do not provide details on their operational definitions of sustainability, beyond the absence/presence of continued activities (e.g. "Are any activities from the project still remaining?") [8]. A gap remains on how to assess the extent of sustainability. There is a need for a methodology or tool for evaluating program sustainability.

To address these gaps, we conducted an assessment of the sustainability of three different community-based child nutrition programs in the highland regions of Peru. The aims of our research study were to: (1) examine the different forms of program logic and elucidate the program impact pathways as a fundamental step for program evaluation, (2) determine the types and extent of program sustainability, and (3) elucidate the contextual factors that influence sustainability.

1.4 Preface to Following Chapters

This thesis consists of five chapters, as detailed hereafter. This introductory chapter is followed by Chapter 2, which describes the three intervention programs that were evaluated for sustainability. This chapter elucidates the program impact pathways (PIPs) of key activities by actors at different operational levels in each program to identify congruencies and gaps in the perceptions of causal mechanisms between program activities and their intended outcomes, and compares them with the simple program models to highlight the methodology and utility of PIPs. This chapter paves the understanding of how the programs work.

The method of assessment and the results on the types and extent of sustainability of the three programs are presented in Chapter 3. We adapted a framework for assessing the characteristics of organizational routines to evaluate the three child nutrition programs. We determined whether programs continue after initial project termination and the types of activities that are continued, and described continued activities using the characteristics of routines to assess their levels of sustainability.

Chapter 4 explores the contextual factors that matter in the sustainability of two of the child nutrition programs. Using pattern matching to test a set of theoretical propositions against observed patterns of factors that influence program sustainability, we identified factors related to the initial programs, the community-based organizations, and the communities that are associated with sustainability.

Chapter 5 is a final discussion of the study. A summary of how this study addressed gaps in the literature and the recommendations for future research are discussed.

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CHAPTER 2:

HOW DO PROGRAMS WORK TO IMPROVE CHILD NUTRITION? PROGRAM IMPACT PATHWAYS OF THREE NGO INTERVENTION PROJECTS IN THE PERUVIAN HIGHLANDS

Abstract

This paper examines the explicitly documented and the perceived representations of program logic of three non-governmental, community-based programs with different intervention models to reduce childhood stunting. Two programs (PNI and Good Start) focused directly on education and behavior change among caregivers or the "short routes" to achieve impact, while one program (REDESA) focused on upstream factors, such as improving local governance and coordination, improving water and sanitation, and increasing family incomes, or the "long routes" to achieve impact. We elucidated the program impact pathways (PIP) of key activities by actors at different operational levels in each program to identify congruencies and gaps in the perceptions of causal mechanisms between program activities and their intended outcomes, and analyzed them with the simple program models and logical frameworks to highlight the methodology and utility of PIPs.

With a desire to move beyond static input-out models of the three programs, data collection activities (document review, semi-structured interviews, and observations) were designed and conducted with the intention to gain insights about those aspects of the program that brought causal mechanisms of a given program into clearer focus.

In terms of the methodology, we propose that different methods for eliciting program impact pathways may be necessary at different operational levels. The interview method elicited more complete responses among those who were familiar with programmatic concepts, while responses from actors at the local operational level provided sparse and fragmentary responses, even when simple common language was used during the interviews. Group participatory processes, using visual aids, may be more effective for mapping the perceptions of those who are not accustomed to

articulating about programs. To reduce the length and frequency of interviews with program actors, initial PIPs could also be constructed from program documents, then discussed and revised iteratively with program actors.

While program logic models and the logical frameworks provide a succinct overview of the program (for communication, strategic planning, and management), we found that PIPs provided a better representation of the causal connections between program activities and results, particularly where a combination of upstream and direct intervention activities were part of the same program. PIPs provided a visual tool for tracking how activities were perceived to work and make an impact, bringing into focus the different pathways of the activities and influences along the way. Beyond the logical sequence of program inputs, outputs, and outcomes, the conceptualization of impact pathways is a useful approach to understand the causal connections required for impact and to identify where attention and reinforcements may be required within program operation. The utility of this tool also warrants its use not only during final evaluation but during mid-program monitoring and relevant assessments.

National and regional level program actors had good understanding of the overarching frameworks and principles of their respective programs as well as the program components and activities. They demonstrated a strong coherence to the program documents, provided similar cohesive responses, and were able to articulate the impact pathways. However, program actors at the national level identified fewer facilitators and barriers along the impact pathways than the local actors, revealing that the practical dimensions of the impact pathways were not as evident to planners and managers farther from the communities. While program actors at the local level were more apt to provide practical examples of influencing factors or "incidents" that occur during implementation, they had difficulties in fully articulating their perceived PIPs, providing fragmented views of how the activities linked to their outcomes. Similar patterns were found across the three programs.

This finding raised the question of desirability of a common understanding of the goals and pathways by which these outcomes are achieved or the acceptability of diversity of perspectives. It is

yet unclear whether program effectiveness may be improved through greater congruency in the PIPs. Future research should elucidate how congruency of PIPs among program actors across operational levels could be increased, and whether greater congruency would improve program implementation and effectiveness.

2.1 Introduction

2.1.1 Interventions to improve child nutrition in modern Peru

Many intervention strategies to combat childhood malnutrition exist. This mirrors the reality that the causes of early malnutrition are multiple and include several levels of factors, including immediate causes related to inadequate dietary intake and health, and underlying causes such as food insecurity, poor maternal and child care, and poor health services and environmental conditions [1]. Peru presents a country case of this dual reflection. At least one in four children less than five years of age (29.5%) in Peru suffers from linear growth retardation, or stunting, with rates as high as 43.2% in the highland regions [2]. The high prevalence of childhood stunting indicates a major problem of chronic malnutrition in the population and also represents the convergence of various social and economic factors.

In response, the Government of Peru is widely recognized for substantial government expenditure on numerous food assistance programs to vulnerable populations, with many of the programs having a longstanding history of over two decades in operation. However, food assistance programs such as the Vaso de Leche (Glass of Milk), Comedores Populares (Common Kitchens), Programa Alimentación Infantil (Child Feeding Program), PACFO (Food supplementation program for high risk groups, i.e., the distribution of fortified “papillas” or porridge), PANFAR (Food and nutrition program to high risk families), and many others have been criticized for being poorly designed (e.g. having low nutritional value, poor behavior change communication, and weak monitoring and evaluation), inappropriately targeted, and not coordinated with each other or with essential complementary services [3]. In addition to the governmental programs, the Peruvian

population also receives a wide range of nutrition programs operated by non-governmental organizations. Throughout the 1990s and 2000s, various international, national and regional NGOs implemented community-based health and nutrition programs throughout the country, with strategies such as nutrition education, behavior change communication, social networks, access to markets and credit, installation of water systems and sanitation facilities, and improving home environmental conditions.

In the mid-2000s, Peru boasted the fastest growing economy in South America, with GDP growth rate of 8.0% in 2006 and 9.0% in 2007 [4]. In 2008, President Alan Garcia even predicted that Peru will cease to be a third world nation in eight years [5], despite the fact that nearly half of Peruvians still live in poverty. At the same time, international cooperation funds markedly diminished, specifically with the termination of the PL480 Title II program in Peru in 2006 and decreased general assistance funding by USAID (Figure 2.1) [6].

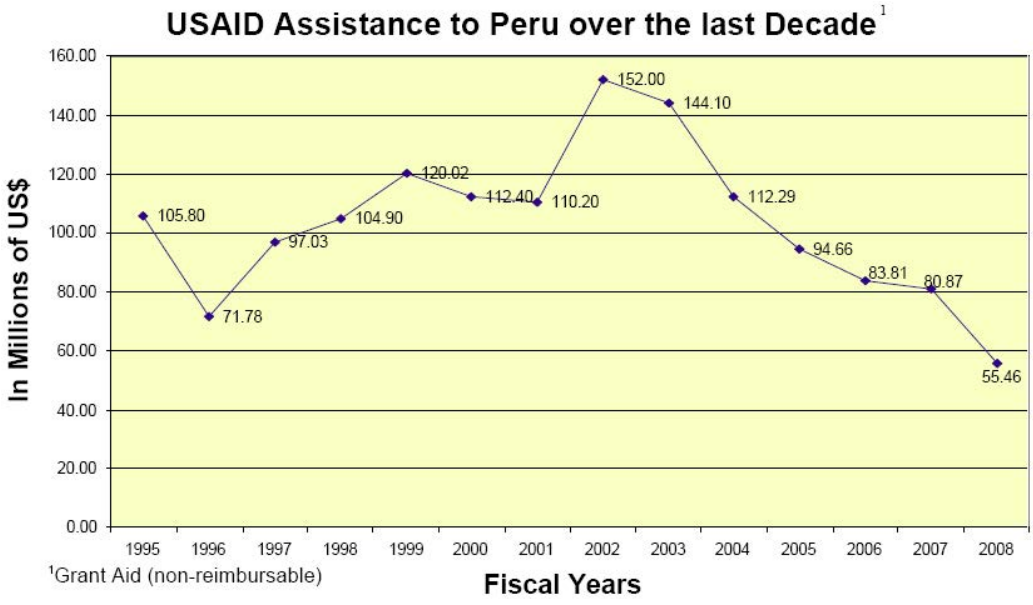


Figure 2.1 USAID assistance to Peru, 1995-2008 [6]

Faced with decreasing program funds and the urgency to increase attention to the continual problem of childhood chronic malnutrition in the country, the NGOs and international agencies involved in food, health and development, formed a consortium[1] prior to the 2006 presidential election, and heavily advocated for nutrition actions in political agendas. As a result, when the current administration of President Alan Garcia took office, combating chronic malnutrition was declared a national priority and was immediately included in government planning. Many of the governmental food assistance programs were consolidated. Social programs were integrated with a unified goal of reducing chronic malnutrition, particularly under the new government strategy "CRECER"[2], which was launched in 2007. Meanwhile, the consortium of NGOs continued to coordinate, strategize, and support the government at the national and regional levels with its experience and expertise. The NGOs and international agencies looked to their own successful program experiences to share lessons learned and to work with the government to make decisions about scaling up interventions.

As is common practice, programmatic experiences were being considered for continuation, scale-up, or termination based on their evidence of effectiveness in achieving impact during their project period [7]. Yet, faced with so many effective interventions, the question of precisely "how" the programs worked to achieve their effects and the differences between the intervention programs require careful examination. Thus, understanding the program logic and impact pathways is necessary to inform decision-making and processes of scaling up.

[1] The Iniciativa contra la desnutrición infantil [*Initiative against child malnutrition*] consists of: Acción contra el Hambre [*Action against hunger*], ADRA-Perú, CARE-Perú, CÁRITAS-Perú, UNICEF, UNFP, Future Generations, Instituto de Investigación Nutricional [*Nutrition Research Institute*], Mesa de Concertación para la Lucha contra la Pobreza [*Consortium for the fight against poverty*], FAO, PAHO/WHO, Plan International, PRISMA, WFP, and USAID.

[2] "CRECER," translated as "GROW" in English, is a national strategy created in 2007, to integrate social programs under a common goal of reducing childhood chronic malnutrition.

2.1.2 Unlocking the black box to understand program pathways

A "black box[3]" is used to refer to an untested postulate linking an exposure and an outcome in a causal sequence, where the causal mechanism is unknown ("black"), but its existence is implied ("box") [8]. In an intervention program, the activities are the exposures that are expected to lead to a proposed health benefit. Intervention programs, particularly those with proven effectiveness, are usually expected to lead to the intended health benefit as long as the inputs are in place and prescribed activities are executed as planned. During program design and planning, the predetermined intervention(s) is usually mapped out in conceptual or logic models or logical frameworks. In general, the logic of the program is displayed in a diagram or matrix table, under categories of program elements (inputs, activities, and results). In program monitoring and evaluation, items in these categories are transformed into process and outcome indicators and measured to verify the progression and impact of the program as planned. While these forms of representing the program facilitate strategic planning and management and provide program overview, the mechanisms by which activities actually take place and achieve their impact are often assumed and implied without explanation.

Even where we expect interventions to be tightly standardized and implemented, variations in implementation and impact processes across different sites and operational levels are likely. Unless the important mediating steps or connections between program activities and outcomes are clearly identified and monitored, it is difficult to know how the intervention was delivered successfully or not. Thus, understanding program logic that focuses on the mechanisms and pathways may help to identify whether impact was achieved despite (or perhaps because of) failure to implement the program as conceptualized and designed.

The present paper examines the explicit or documented and the implicit or perceived representations of program logic of three non-governmental, community-based child nutrition

[3] The "black box" has been extensively discussed and debated in the field of epidemiology, in reference to unknown mechanisms between disease exposures and disease outcomes.

programs with different intervention models. We present and discuss their program overviews, logical frameworks, and program impact pathways based on interviews with program actors. By analyzing the different representations of program logic for each program, the paper aims to elucidate different program impact pathways (PIP) for achieving the same final outcome and highlight the importance of the PIP methodology.

This paper is motivated by the insight that impact pathways of intervention programs are gravely overlooked and that variations exist in the perception of how programs work to achieve their outcomes among program actors at different operational levels. We believe that currently used program models and frameworks based on components and categories, while sufficient to monitor resources and prescribed activities, do not fully capture the impact processes of interventions. We suggest that the focus on mechanisms and pathways is important for demonstrating the causal connections between activities and outcomes in program evaluations.

This paper is organized as follows: Section 2.2 sets forth basic terms and concepts related to the different representations of program logic. Section 2.3 describes the study methods used for eliciting and mapping the logical frameworks and impact pathways. Sections 2.4 to 2.6 present the study results for each program. Section 2.7 discusses the findings across the three programs and the PIP methodology, and Section 2.8 concludes with reflections on the application of program impact pathways.

2.2 Definition and Concepts

There are many different models, frameworks, diagrams, and matrices to represent what constitutes a program and its logic for achieving results. The type is selected based on the purpose and use and sometimes even based on personal preference, but often it is predetermined by a donor agency or by upper management. This section discusses several common representations of program logic.

2.2.1 Logic models, logical frameworks, and results frameworks

Logic models, logical frameworks, and results frameworks are all tools for program planning and management with wide application. They have been developed and used extensively by planners and evaluators for over 30 years. In the case of logical frameworks or logframes, they have evolved since 1970 when the first logframe matrix was developed by USAID for improving its accountability to Congress [9-11]. During the 1980s and 1990s, its evolution to being an integrated, comprehensive tool was largely driven by international and bilateral aid agencies for use in development planning and project management. There are many definitions[4], philosophies, approaches, and applications of these various tools, found in literature and in practice [12-16]. Terms are often used interchangeably, and there is little distinction between what defines one diagram to another. In general, all these tools illustrate the logical progression of a program from inputs to outputs and outcomes.

A logic model is the most general and commonly used term. It is simply a graphic or schematic representation of the logical sequence and intended relationships between inputs, activities, and results [17]. A logic model presents a graphic overview, highlighting the sequence between the program elements. It may present a simple sequence to a highly complex relationship.

A logical framework or logframe includes the same information as in a logic model, but is organized in a matrix table (Figure 2.2). Logical frameworks are defined by the OECD/DAC (2002) as a "management tool used to improve the design of interventions… involves identifying strategic elements (inputs, outputs, outcomes, and impact) and their causal relationships, indicators, and the assumptions and risks that may influence success and failure" [18]. Thus, logical frameworks tend to be more specific than program logic models. Logical frameworks follow the same reasoning as logic models, but they extend further to the identification of indicators for each component, their means of verification (or sources of data), and assumptions [17].

[4] Program logic models have been called by different terminology: "Chains Reasoning" (Torvatn, 1999), "Theory of Action" (Patton, 2002), "Performance Framework" (Montague, 1997), "Program Logic Models" (Framst, 1995; Rush and Ogborne, 1991).

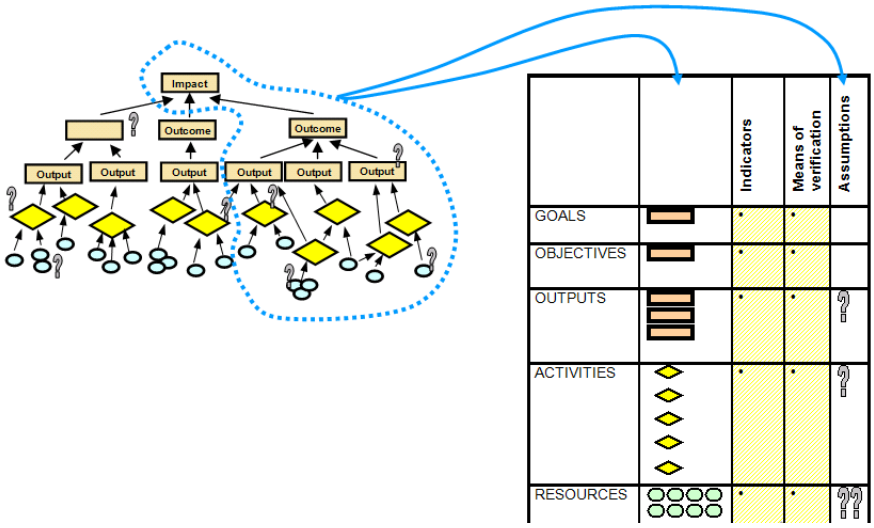


Figure 2.2 Relationship between logic models (left) and logical frameworks (right)

A specific variation of the logical framework is the results framework, which focuses on outcomes, objectives, and impact/goals. The results framework starts with the program's ultimate goals and a hierarchical outline of results to achieve that goal. Program strategies and activities that are expected to lead to the intermediate results are subsequently identified. The results framework was adopted and widely promoted by the USAID to strengthen the planning and evaluation of its projects [9-11]. Marsh and colleagues (2008) outlined the "6-box" version commonly used by health programmers (Figure 2.3). "Each box reflects a specific category of programmatic result, all of which contribute to the overall goal of improved health status" [19]. This framework indicates stepwise results to achieve the goal and prompts the specification of indicators to track progress toward achieving these results.

Figure 2.3 Results framework [19]

These various diagrams and matrices present logical sequence of programmatic elements, overall programmatic direction, and even a focus on results. While all serve as important strategic and management tools, there is often a general lack of focus on mechanisms and pathways.

2.2.2 Program theory and program impact pathways (PIP)

Program theory is an explicit representation of the "mechanisms by which program activities are understood to contribute to the intended outcomes" [20]. In a program theory, the processes that link program activities with immediate outcomes (related to learning), intermediate outcomes (related to actions), and final outcomes (related to conditions) are explicitly defined. Theory is employed at two levels: (1) the conceptualization of mediating processes that link program components to immediate outcomes and (2) the psychosocial theory that explains intermediate outcomes that mediate the final outcomes [21]. This has been described simply as being interested not in the "boxes" in a causal diagram but in the arrows [22]. Program theories may be simple or complex, linear or cyclical. They may be used for at least three purposes: summative or impact evaluation that focuses on answering the

question, “Does the program cause the intended outcome?” [23]; formative or process evaluations that are intended to suggest how the program can be improved; and ongoing program monitoring that provides continuous indicators of program performance [24]. During evaluations, program theories could serve to identify essential causal pathways and then to analyze whether these pathways connected to specific program elements are plausibly and empirically associated with their success. Even after the final evaluations, program theories could be used to understand how the programs worked or continues to work to achieve their intended outcomes and for identifying important program elements that are essential for widespread replication.

In general, there is little documentation and use of program theories in nutrition intervention programs. However, there is growing interest and greater awareness of the need for understanding of causal mechanisms and pathways of intervention programs. There is recent evidence building on the use of “impact pathways analysis” for strategic planning and monitoring [25, 26], and “intervention-causation pathways,” “program causal pathways” and “program impact models” used for program evaluation [27-29].

In a 2008 WHO/UNICEF meeting on *strengthening action to improve feeding of infants and young children 6-23 months of age in nutrition and child health programmes*, the term Program Impact Pathway (PIP) was defined as “the pathway from an intervention input through programmatic delivery, household and individual utilization to its desired impact” [30]. With the focus on the causal mechanisms of programs and the intention to move beyond static input-out program models, we use the term *program impact pathways* in this paper, in reference to the methodology and explicit representation of the pathways by which the program (activities) achieves its intended outcomes.

2.3 Study Methods

This section describes the methods used in the empirical study to construct and analyze the different representations of program logic and impact pathways of child nutrition programs.

2.3.1 Program selection

The programs in this study were first identified in 2006 during meetings[5] and discussions with actors from the Peruvian national government, international aid agencies, and national institutions involved in health and nutrition. Various actors recognized three programs as being exemplary in effectiveness and recommended them for further study. While they used different approaches and strategies, the three non-governmental community-based intervention programs had the same final outcome, i.e., reduced prevalence of chronic malnutrition among children less than three years of age. They also focused primarily on behavior change without the distribution of food supplements. The three selected programs were ADRA-Peru's Child Nutrition Program (Programa de Nutricion Infantil, PNI), CARE-Peru's Sustainable Networks for Food Security (Redes Sostenibles para la Seguridad Alimentaria, REDESA), and UNICEF's Good Start (Buen Inicio). ADRA-Peru's PNI and UNICEF's Good Start focused directly on education and behavior change among caregivers or the "short routes" to achieve impact, while CARE-Peru's REDESA focused more intensively on upstream factors, such as improving local governance and coordination, improving water and sanitation, and increasing family incomes, or the "long routes" to achieve impact. Details about the intervention activities are discussed in the Results sections.

All three programs similarly focused on intervening at the community-level among rural poor populations in the highlands, where stunting prevalence is the highest in the country. They were funded through five-year project grants from the USAID. Two of the programs (ADRA-Peru's PNI and CARE-Peru's REDESA) were among the four NGOs that received USAID PL480 Title II program funds. UNICEF, CARE-Peru, and ADRA-Peru terminated their funded project cycles in 2004, 2006, and 2007 respectively.

[5] Selected programs were identified during two specific meetings in Peru: National-level meeting of national government officials and major NGOs to discuss a prospective World Bank project called Nutrition Results (December 2006), and a technical meeting on CRECER with governmental and non-governmental national and regional actors working in nutrition and education (June 2007).

At the end of their project cycles, the programs conducted final evaluations, which showed significant reductions in stunting prevalence in the program areas. A summary overview of the three programs and their final evaluation results are presented in Table 2.1 [31-33].

Table 2.1 Summary of the three community-based child nutrition programs [31-33]

	ADRA-Peru's PNI	**CARE-Peru's REDESA**	**UNICEF's Good Start**
Program period	Oct.2004-Sep.2007 (3 years) 2002-2004 (2 initial years with food distribution)	Oct.2001-Sep.2006 (5 years)	Oct.1999-Sep.2004 (5 years) 2005-2008 ("expansion phase" to disseminate the methodology without direct intervention support)
Regions	Ayacucho, Cajamarca, Huancavelica, Huanuco, La Libertad, Ucayali (n=6)	Ancash, Apurimac, Ayacucho, Cajamarca, Huancavelica, La Libertad Puno (n=7)	Cusco, Cajamarca, Apurimac, Loreto (n=4)
No. of program participants	22,128 children <3 years, 21,667 pregnant and lactating mothers	64,434 children <3 years, 58,570 families	75,000 children <3 years, 35,000 pregnant and lactating mothers
Total 5-year budget, funding from USAID	US$ 13,369,721	US$ 21,340,000 (US$33.50 per year per child intervened, for each % point reduction in stunting)	Not available (US$36.40 per year per child intervened, for each % point reduction in stunting)
Final evaluation date	September 2007	September 2006	September 2004
Sample size in evaluation	960 households	1,597 households	876 children in 19 communities (for anthropometric data)
% stunting (pre)	31.8 (2002) (Based on monitoring data: 29.3% in 2002 and 27.5% in 2005)	34.2 (2002)	54.1 (2000)
% stunting (post)	26.2 (2007) (Based on monitoring data: 21.0% in 2007)	24.3 (2006)	36.9 (2004)
% point difference (reduction)	5.6 (Based on monitoring data, 6.5% point difference between 2005 and 2007.)	9.9	17.2

While the program impact evaluations are not a focus of this study, their results are discussed here briefly, as evidence of effectiveness in achieving their common endpoint. Fieldwork for the final program evaluation of ADRA-Peru's PNI was conducted from August 19 to September 21, 2007. A

probabilistic stratified sample of intervention households was selected by geographic regions of the intervention. There was no non-intervention comparison group of households that did not participate in the program. The evaluation methods included household surveys, anthropometric measurements, in-depth interviews, and document review. The final evaluation reported the total percentage of children less than 36 months of age with chronic malnutrition as 26.2% [31]. Although the program evaluation was originally intended to have a pre-post evaluation design, there were problems with the sampling and interpretation of results. The baseline (or pre-intervention) evaluation was conducted in 2002 by ADRA-Peru. However, ADRA-Peru terminated food distribution in 2004 and focused on the behavior change strategies of its program, and they also began working in different households in different geographical areas (mainly, due to communities refusing to continue participation without food distribution). Thus, the intervention areas for the final evaluation were not entirely the same as those of the baseline evaluation. While the percentage point difference in the reduction of chronic malnutrition between the baseline and final evaluations was reported as 5.6% [31], this figure cannot be interpreted at face value. However, the decreasing trend in the prevalence of chronic malnutrition in the intervention areas, particularly during the period without food distribution, was supported by annual program monitoring data. The year-end prevalence rates of chronic malnutrition among children less than three years from 2002 to 2007 were 29.3%, 29.7%, 29.7%, 27.5%, 25.9%, and 21.0% respectively [31]. A reduction was noted between the years of the program without food distribution (2005 to 2007), with a percentage point difference of 6.5% [31].

Fieldwork for the final evaluation of CARE-Peru's REDESA was conducted from August 11 to September 3, 2006. A random representative sample of households in the intervention areas was selected, as well as control households that did not participate in the program. Data collection methods included household surveys (socioeconomic questionnaire and health-nutrition questionnaire with anthropometric measurements), interviews, and focus groups. The baseline evaluation in 2002 reported the prevalence of chronic malnutrition in children less than three years of age as 34.2% ($p<0.0001$) [32]. In the final evaluation, the prevalence of chronic malnutrition in the same age group

was 24.3% ($p<0.0001$) [32]. The percentage point difference between the baseline and final evaluations was 9.9% [32].

The final evaluation of UNICEF's Good Start program was conducted in 2004 in all of its four intervention regions. A random cluster sample was selected in two stages in the four regions. However, given that the initial intervention areas included in the 2002 baseline survey were much smaller than those participating in the program in 2004 and only anthropometric and biochemical data was collected initially, anthropometry and hemoglobin and serum retinol levels were measured in 19 communities that were included in both surveys. A comprehensive household survey was applied for the broader sample in the final evaluation only. The prevalence of chronic malnutrition in children less than three year of age at baseline was 54.1% and 36.9% ($p<0.01$) at final evaluation, for a 17.2 percentage point reduction [33].

Although ADRA-Peru, CARE-Peru, and UNICEF reported their programmatic experiences in their respective program documents and grey literature, there is no formal documentation of their program impact pathways and no comparative analysis across the different programs prior to this paper.

2.3.2 Selection of key program actors

Key informants involved with the three programs at the national, regional and local levels were selected to participate in interviews to elicit their perceived program impact pathways. For each program, project staff from ADRA-Peru, CARE-Peru, and UNICEF at the national and regional levels was identified. All project staff was considered to belong at the national and regional levels, even those who worked directly at the local levels, because they were employed by the higher levels. In the case of Good Start, UNICEF's support to communities was provided through an intermediary, either regional NGOs working in the program area or the health network (i.e. different levels of health establishments) of the Ministry of Health. Thus, key informants for Good Start at the regional and local levels also included project staff of the regional NGOs and health personnel in the government

health network. For this study, regional actors for the three programs were limited to those in two neighboring highland regions, Apurimac and Ayacucho. At the local level, the organizational schema of key actors involved in program delivery was developed for each program, based on program documents and discussions with the national program coordinators. The organizational schema for each program is discussed in the Results sections.

A purposeful sample of participants was selected for the semi-structured interviews at the national, regional and local (district or community) levels. Types of interview participants included national program coordinator, regional program coordinator, regional and local health staff, district municipality manager, community authority, and community health agent. Although a few interviews with program beneficiaries (i.e. mothers) about their participation and experience were conducted during the site visits, insufficient data were collected. Thus, their results are not included in this paper.

2.3.3 Data collection methods

This study was conducted in Lima, at the national offices of ADRA-Peru, CARE-Peru, and UNICEF, and at seven program communities in the highland regions of Ayacucho and Apurimac. The communities for site visits were selected by the national program coordinators. They selected communities considered as "model communities," where program activities were in operation. In Ayacucho, two PNI communities were visited in the district of Jesus Nazareno. In Apurimac, site visits were conducted in two REDESA communities in the district of Huaccana, province of Chincheros; and three Good Start communities, two in the districts of Santa Maria de Chicmo and Kaquiabamba, province of Andahuaylas, and one in the district of Huaccana, province of Chincheros. Data collection was conducted in July and August 2007. Ethical approval for the study was obtained from the Cornell University Commission on Human Subjects and the Nutrition Research Institute (Instituto de Investigación Nutricional) Ethics Committee in Lima, Peru. Verbal consent was obtained from all participants prior to the interviews. Three methodological approaches were used, i.e. document review, semi-structured interviews, and observations during site visits to program

communities. Across all data collection methods, the intention was to gain insights about those aspects of the program that brought causal mechanisms of a given program into clearer focus. With a desire to move beyond static input-out models of the three programs, data collection activities were designed to provide insights about how components of a particular program achieved its goals.

Document review

Program documents such as progress and final evaluation reports, informational pamphlets or booklets, and instructional or educational materials were obtained from the national and regional offices and collected during site visits. The list of program documents reviewed is presented in Appendix A.1. The program documents were secondary data sources used to obtain program overview and understanding of the intervention activities. The "official" espoused program models were extracted from the program documents and used for comparing with the logical frameworks and program impact pathways constructed from the interviews and observations. Information from program documents also helped to explain and clarify the data collected during the interviews and observations.

Semi-structured interviews

A total of 20 semi-structured interviews (5 PNI, 6 REDESA, and 9 Good Start) were conducted with actors involved in program delivery at the national, regional and local levels. The list of interview participants is shown in Table 2.2. Most of the national and regional program actors interviewed were ADRA-Peru, CARE-Peru, and UNICEF program staff. In the case of Good Start, the regional actors also included program staff of the regional NGOs (Kusi Warma and Solaris) and Ministry of Health officials at the Regional Health Department (DISA).

Table 2.2 List of interview participants

Program	Level (No. interviews)	Position/Title
PNI	National (n=1)	Program administrator (ADRA-Peru)
	Regional (n=1)	Regional program advisor (ADRA-Peru)
	Local (n=3)	District municipality manager
		Glass of Milk Program coordinator
		Community health agent
REDESA	National (n=1)	Program coordinator (CARE-Peru)
	Regional (n=3)	Program coordinator (CARE-Peru)
		Nutrition consultant (CARE-Peru)
		Sub-regional program coordinator (CARE-Peru)
	Local (n=2)	CODECO community authorities
		Community health agent
Good Start	National (n=1)	Program coordinator (UNICEF)
	Regional (n=6)	Nutrition consultant (UNICEF)
		Program coordinator (Kusi Warma)
		Program advisor (Solaris)
		DISA health promotion official
		DISA integrated care official
		DISA integrated child health coordinator
	Local (n=2)	Community health agent
		Health post nurse

Semi-structured interviews were conducted using a pretested interview guide (Appendix B) and general probing questions to explore specific issues. All participants were questioned about the purpose of the program; how the program (activities) works to achieve immediate results related to learning and knowledge, intermediate results related to behavior change, and the final health outcomes; facilitators and barriers to outcomes; and factors that influenced program implementation. Given that local actors included rural community members who predominantly spoke Quechua (native language) and/or did not understand technical or programmatic terminology, another version of the interview guide for local actors was developed, using simple common words for questions related to program elements. All interviews were conducted in Spanish, digitally recorded, and transcribed.

Observations during site visits

Observations of key program activities were conducted during each site visit (2 PNI, 2 REDESA, and 3 Good Start communities). Key program activities were those identified in program documents and during interviews as the core activities implemented across all intervention communities. The site

visits were coordinated so that pre-planned program events such as educational sessions for beneficiaries, workshops for local health personnel and community health agents, and local council or committee meetings were observed. The main purpose of the observations was to obtain a practical understanding of the implementation process of a key activity for each program. Observations were recorded through the use of field notes during the activity, and expanded notes were written immediately following each observation to describe the context and steps of the event, beneficiaries' responses, and the overall experience. Observation field notes were used to supplement the data collected through the interviews.

2.3.4 Data analysis

First, the general program models and results frameworks were reproduced based on program documents, to provide an overview of the programs. Organizational schemas of program actors were developed using program documents and interview data. Then the logical frameworks and impact pathways of the programs were elaborated, using interview responses supplemented with program documents and observation field notes. Interview transcripts were coded with Atlas.ti 5.2 (qualitative data software) and by hand-notation, according to predefined codes of program elements (i.e. rationale, assumptions, inputs, activity process, outputs, impact process, outcomes, facilitator, barrier, and adaptation) as well as emergent themes. For each program activity, quotations by codes were diagrammed to connect the sequences between program elements.

Given that each program was made up of many intervention strategies and activities, a single logical framework for each program was constructed to capture the scope and logic of the activities implemented. The logical frameworks were elaborated from the aggregated interview data across all operational levels, national to local. Only the program activities identified in the interviews were included, rather than encompassing all possible range of activities from the program documents. Then the logical framework of one key activity from each program was extracted for discussion in this paper.

As previously mentioned, key program activities were those identified in program documents and during the interviews as the core activities implemented in all intervention communities.

The impact pathways of program activities were also elaborated based on the interview data, with observation data used to facilitate understanding of the activity sequence to immediate outcomes. Although impact pathways may flow in various directions, data from our study permitted mapping of only unidirectional pathways. The impact pathway of one key activity for each program is presented and discussed in this paper. In order to examine a common activity across the three programs, the impact pathways of growth monitoring and promotion (GMP) are also discussed in this paper.

The types of models and frameworks in this paper and their primary data sources are as follows:

Models and frameworks	**Primary data source**
• General program model and result framework • Organizational schema	Program documents
• Logical framework	Interviews Program documents
• Program impact pathway	Interviews Observations

2.3.5 Special consideration of growth monitoring and promotion

Growth is widely accepted as a measure of nutritional status and well-being. The measurement of growth has also been widely used for a variety of purposes at the individual and population levels [34, 35]. Infant and child growth monitoring, or "the regular measurement, recording, and interpretation of a child's growth in order to counsel, act and follow up results" [36], is a central feature of many child health and nutrition programs. However, measurement and charting alone are insufficient for improving nutritional outcomes [37, 38], and "promotion" is added to emphasize the essential counseling and motivation of mothers following the task of "monitoring" [39]. Thus, the combined growth monitoring and promotion (GMP) allows the early identification of child malnutrition as well as an opportunity for regular counseling on infant and young child feeding and care practices.

There are different views about the role of GMP in programs to improve child growth, with some groups basing an entire infant and young child feeding strategy around GMP (e.g. BINP in Bangladesh, AIN-C in Honduras, etc.), and others using GMP as a narrower activity in a larger child nutrition strategy (e.g. World Vision in Haiti). Successes with GMP have been mixed, but it continues to be discussed globally as a potential keystone strategy for improving child nutrition [35]. In all three programs of our study, GMP was identified as an important activity for improving child growth and nutrition. Thus, we selected this common activity as another example for a closer look at impact pathways, particularly in showing the different uses and pathways of the same activity.

2.3.6 Assumptions and limitations

This study was conducted during the final project phase or shortly following the termination of external funding support of the three programs. We used the information and persons available at the time of the study. Other program documents were produced after the data collection period, but only the selection available and relevant were gathered and reviewed. To assure the observations of key program activities, the national program coordinators coordinated with local counterparts to identify exemplary communities with ongoing activities for site visits. Given that hundreds of communities participated in the programs, a wide range of activities and extent of implementation existed. Also, some communities had already stopped their activities, since external support was no longer available. We tried to observe ongoing key activities in a few selected communities with ideal program conditions.

All three programs focused on activities implemented in and by the communities rather than interventions primarily through the health services, as is common in most public health and nutrition programs. (In the case of Good Start, the government health network was used as the primary implementer to deliver program activities in some communities, but we focused only on its community-based strategy for this study.) This community focus created the need for a broader consideration and understanding of program actors, beyond health personnel.

The three programs consisted of many more elements and results (both positive and negative) than those included in this study. For the purpose of this paper, the programs are described in general terms and only specific aspects are highlighted for discussion. The results are mostly illustrative to discuss main findings and methodologies, and the findings from this study do not call into question the impact or effectiveness of the programs.

2.4 Results of ADRA-Peru's PNI

2.4.1 Program overview

What is the program?

The Child Nutrition Program (PNI) was a five-year project (2002-2007) implemented in two cycles. In its first two project years, food baskets were distributed as part of the support through the USAID-PL 480 Title II program funds. The food baskets were intended to be a strategy to improve household food availability, but they also served as an incentive for program participation. In its third project year, ADRA-Peru stopped food distribution. This study focused on PNI strategies during this second cycle.

PNI was the culmination of ADRA-Peru's programmatic experience in improving child nutrition for over a decade in Peru. Program activities included weekly or biweekly mothers' workshops on health and nutrition topics, follow-up home visits, monthly growth monitoring and promotion by community health agents (CHAs), and small economic activities among mothers as an incentive to assure their participation. PNI focused on health and nutrition education of mothers and nutritional surveillance under the direct leadership and responsibility of CHAs. Its explicit strategies were information, education, and social communication. Although the installation of water and sanitation systems (i.e. latrines) and formation of community organizations for health and development planning (i.e. local health committees) were originally included among their activities, these activities stopped being implemented during the second cycle due to budget shortfalls and lack of uptake or retention of the activity in the communities. However, hygiene and sanitation remained

as core topics in the mothers' workshops and were addressed during annual public clean-up and biannual hand-washing campaigns. Also, maternal and child health and nutrition activities continued to be advocated during community development planning.

The only model or framework explicitly presented in the program documents is the general program model shown in Figure 2.4. This explicit program model summarized the program in terms of its components, strategies, and expected results. PNI consisted of four components: (1) maternal and child health and nutrition, (2) basic sanitation and sanitary education, (3) strengthening of civil society, and (4) small-scale economic activities among beneficiary mothers. Each component was made up of activities that correspond to the strategies of information, education, and social communication. The activities were expected to result in four main intermediate outcomes: (1) improved health and nutrition knowledge and practices, (2) increased access to health services, (3) improved basic sanitation, and (4) improved development plans of community-based organizations in relation to health and sanitation. These four intermediate outcomes then led to the final outcomes of improved health and nutritional status of children less than three years of age and pregnant women.

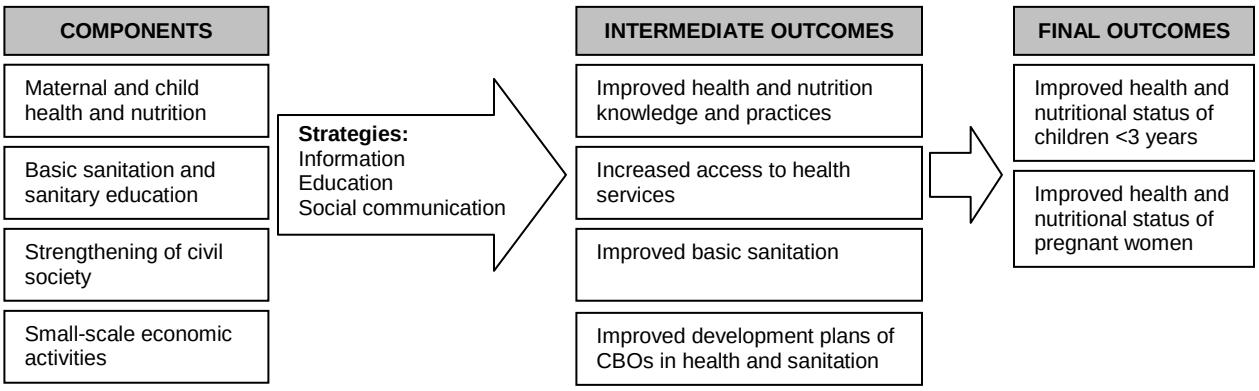


Figure 2.4 PNI program model

Given their similar layouts, the general program model was easily converted into the "6-box" version of the USAID results framework [19], which is shown in Figure 2.5.

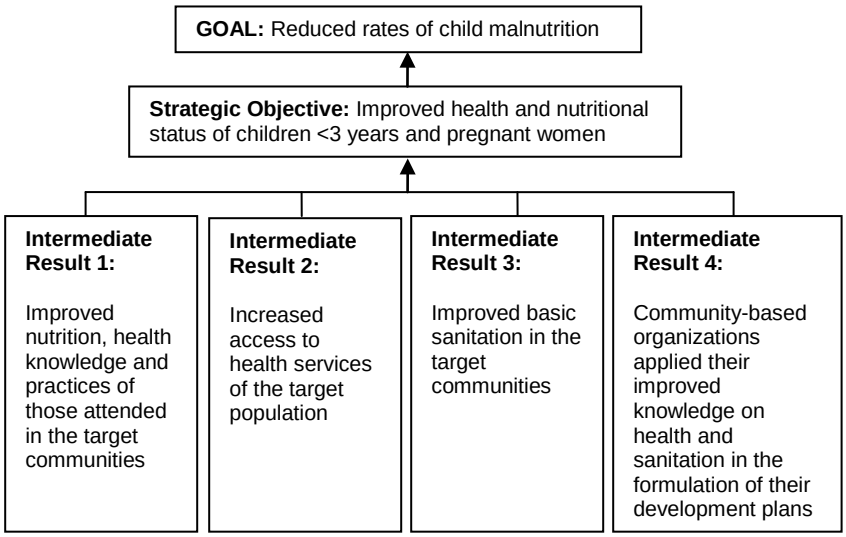


Figure 2.5 PNI results framework

As observed in Figures 4 and 5, both the explicit program model and basic results framework from the program documents are very general, describe few program elements, and make many assumptions about how program components are expected to achieve the results. Although details on how to implement the activities within the program components are provided in the educational and instructional materials, there is still an unspecified assumption that activities implemented as prescribed will result in the expected outcomes. Furthermore, this same general program model was continually replicated across various program documents produced over time. It appeared that this program model was not revised or updated, despite discussions of operational experiences and lessons learned in the program documents that may have permitted refinement of the model.

Who is involved?

An organizational schema of program actors is an essential part of understanding how the program works. As a community-based intervention program, PNI involved community-based organizations (CBOs) and other local actors to achieve its impact in the community, particularly

among its main target groups of pregnant women and mothers of children less than three years of age. Although the focus was on the community, PNI also involved formal organizations[6] at the district or multi-community level, since the community is directly influenced by the actions of the social and political structures at this level. The organizational schema of local actors involved in PNI is shown in Figure 2.6.

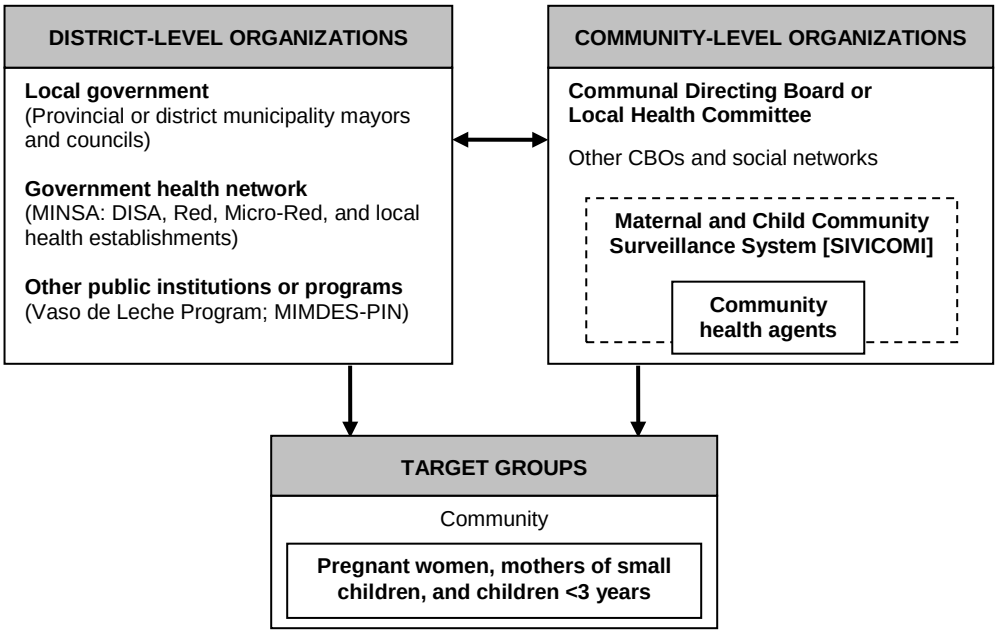


Figure 2.6 PNI organizational schema at the local level

At the community level, PNI coordinated with the communal directing board (or local health committee, where one exists), which consists of community authorities that manage all matters pertaining to the general wellbeing and development of the community. Other CBOs and social networks, such as mothers' clubs and agricultural associations or committees, were convened to participate in certain community-wide activities (e.g. campaigns on hand-washing and cleaning

[6] Formal organizations are commonly denominated as structures with fixed set of rules of intra-organizational procedures and systems of coordinated and controlled activities executed through formal positions, and embedded in boundary-spanning exchanges. For the purpose of this study, formal organizations are institutional structures and characterized as being top-down, hierarchical, and bound by codified rules and order.

communal spaces) and were sensitized to discuss maternal and child health and nutrition issues in their organizational meetings and during community development planning. The community was also informed of the health and growth status and progress of pregnant women and small children through the Maternal and Child Community Surveillance System (SIVICOMI), directly managed by the CHAs. The SIVICOMI referred to the group(s) of 10 to 20 beneficiary mothers or caretakers in the community, whose children's health and growth status was monitored regularly by the CHAs. Those belonging to the SIVICOMI participated in the weekly or biweekly workshops and other activities led by the CHAs.

The district level is the final geopolitical level for governmental resources and official census, and formal organizations. The three main groups of formal organizations involved with PNI included the local government, the government health network, and other public institutions and programs related to food and nutrition. The local government refers to the provincial or district municipality, and PNI coordinated with the local government in specific activities and advocated the inclusion of activities to improve child nutrition in local development plans. The health network refers to the different levels (national, regional and local) of the Ministry of Health (MINSA) – the regional health department (DISA), the regional network (Red) responsible for the micro-networks, the micro-network (Micro-Red) of a cluster of local health establishments, and the local health establishments (e.g. health centers and health posts). PNI coordinated with MINSA at every level to inform them of its activities and transfer resources. However, PNI coordinated more closely with local health establishments, particularly involving health personnel to participate in activities related to health and nutrition education to the community. PNI also worked with other public institutions and programs involved in food and nutrition, such as the Vaso de Leche (Glass of Milk) Program and the Integrated Nutrition Program (PIN) of the Ministry of Women and Social Development (MIMDES), to coordinate educational and social communication activities.

2.4.2 Logical framework of mothers' workshops

Similar to other logic models, a logical framework serves to communicate what a program invests, intends to do, and hopes to achieve, but it is organized in a matrix table and displays more specific details of program elements. The logical framework of PNI's key activity, i.e. mothers' workshops, was constructed with the program elements: rationale and assumptions, inputs, target population, outputs, and outcomes (Table 2.3). Although logical frameworks usually include indicators or the means of verification (data source) of the program elements, we excluded them from our logical framework because few were identified.

The mothers' workshops were an important activity pertaining to the first program component (maternal and child health and nutrition) of the PNI program model (Figure 2.4). An important rationale for the workshops was that "common" and "shared" knowledge among mothers will lead to appropriate and feasible solutions. Thus, the sharing of common knowledge among the mothers to reach solutions to their health and nutrition problems was expected to take place in the workshops. Some assumptions identified were the lack of knowledge among mothers, and the access and availability of foods in the household, especially through the support of government social programs. Given these assumptions, the workshops focused on education and information exchanged among the mothers and with the CHAs. Then under each categorical heading within the matrix, a series of expected outputs and outcomes are listed. However, given the matrix layout with categories of program elements, it is difficult to capture "how" the activity actually takes place and "how" all or part of the listed outputs proceed to connect with the subsequent outcomes. While the logical framework provides an understanding of why this activity is implemented and what this activity is expected to accomplish, the causal relationships are no clearly presented in this matrix.

Table 2.3 Logical framework for mothers' workshops

Rationale and assumptions	Resources/ Inputs	Activities	Target Population	Outputs	Proximal or Immediate Outcomes	Intermediate Outcomes	Final Outcomes
COMPONENT 1. Maternal and child health and nutrition							
Poor child health and nutrition are a problem in the community Mothers require knowledge and understanding of health and nutrition issues and how to address them Common shared knowledge provides appropriate and feasible solutions Access and availability of foods and other resources to implement practices at the household-level exist (e.g., through social programs)	Trained community health agents (CHA) Materials and supplies (e.g. theme schedule, flipcharts, markers, poster papers, food for demonstrations, cooking utensils) Space or facility Time Monitoring and supervision	(Weekly or biweekly) Workshops	Pregnant women, mothers of small children, and children <3 years	CHA identify health and nutrition concerns among mothers and growth progress of their children CHA facilitate adequate and appropriate discussion and demonstrations and provide relevant information on health and nutrition issues Mothers receive adequate and appropriate health and nutrition information Mothers understand the health and nutrition issues and information	CHA adapt discussions and demonstrations according to relevant concerns and needs Mothers recall information Mothers implement actions to prevent health and nutrition problems and promote growth and development (i.e., improved feeding, health and care practices) Mothers recognize signs of health or nutrition problems Mothers seek out health services in a timely manner	Child receives EBF for 6 months, then consumes adequate and appropriate complementary foods with BF Child receives timely and adequate health attention Child receives appropriate care Child exposed to clean and safe home environment Pregnant woman consumes sufficient and appropriate foods Pregnant woman receives timely and adequate health services	Child growth and nutrition improved Nutritional status of pregnant women improved

2.4.3 Impact pathway of mothers' workshops

As explained in Section 2.1, program impact pathways involve conceptualization of the mediating processes linking program activities to immediate outcomes, and the intermediate outcomes to final outcomes of the program. The pathways represent the causal connections of how a program activity works, while the identification of facilitators and barriers based on practice and experience provide the practical dimension to support a full representation of how the program works to achieve its impact.

Most of the PNI program actors described a fragmented view or understanding of how the program worked stepwise to reduce childhood chronic malnutrition, even when focusing on a single activity. Program actors at the national and regional levels, who were both ADRA-Peru project staff, provided more cohesive and complete descriptions of the pathways. Although actors at the local level gave more incomplete responses about the pathways, they provided more examples of barriers and facilitators for certain actions along the pathways. The responses of all five PNI program actors were combined to construct the illustrative impact pathways of mothers' workshops (Figure 2.7). In the diagram, responses of national and regional actors and local actors are indicated by a superscript "1" and "2" respectively.

Nearly all of the program actors identified the first step of the activity as the CHAs convening the mothers on a regular basis to participate in the workshops. This initial step hinged on two important factors. First, the women needed an additional incentive for taking time away from their work and family to participate, since the "opportunity to learn" how to improve their children's health and nutrition or living conditions were often an insufficient incentive to assure regular participation. Second, local program actors identified the importance of women obtaining approval from their husbands to continue participating.

After the mothers were convened, the CHAs had to be prepared to raise different topics for both discussion and "practice" (demonstrations or dramatizations), so that mothers heard and observed information of relevance and interest, observed and participated in examples of practices, and stayed engaged throughout the workshop. The use of the local language spoken by the mothers and use of

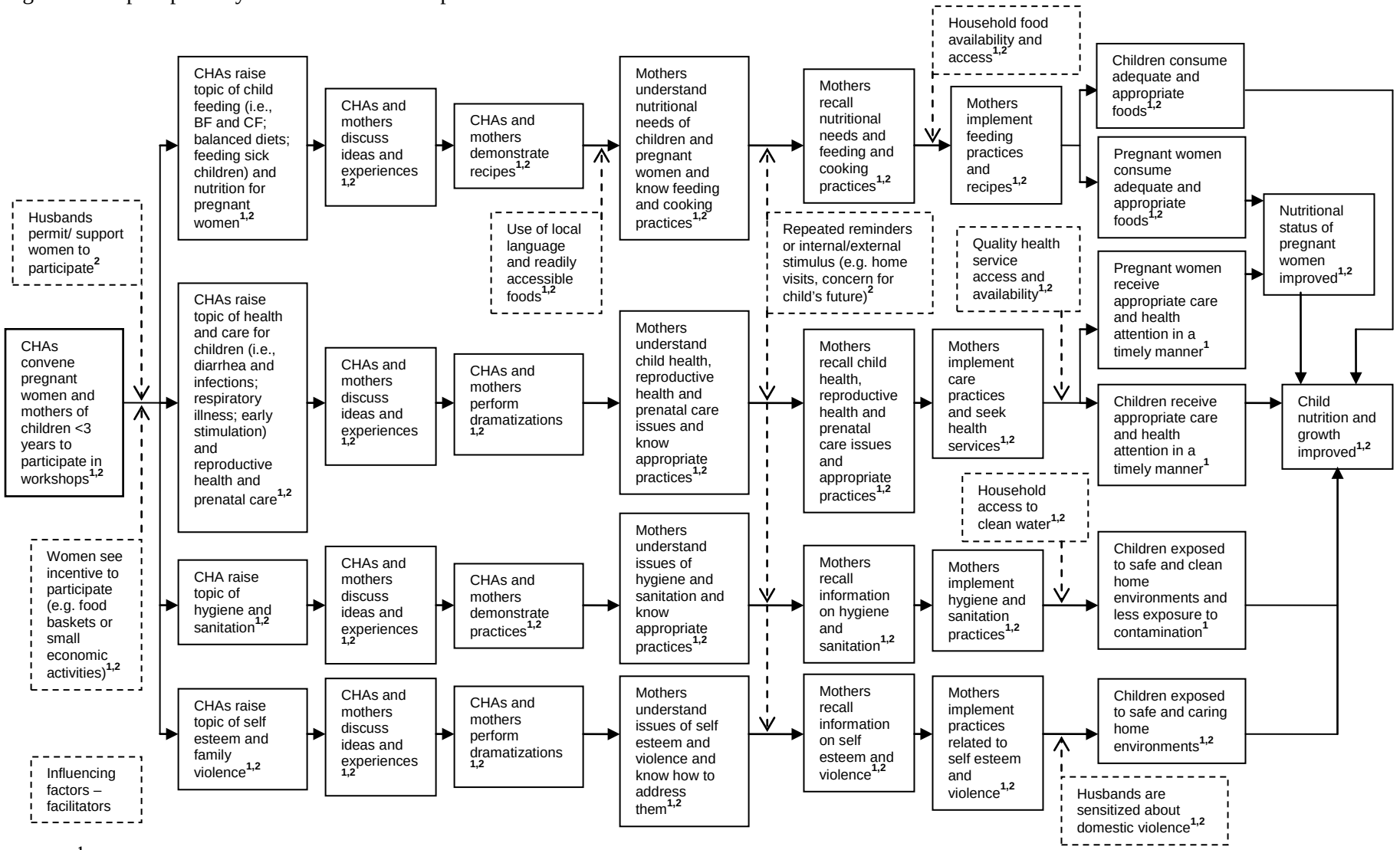
foods or materials that were locally and readily available were essential in assuring that the information and practices were accepted and understood.

After the mothers returned to their homes, they were expected to recall what they learned and put it into practice. Most of the local actors pointed out that mothers always forgot when they returned home, so triggers or stimuli from within themselves or external sources such as follow-up home visits by CHAs were necessary. Cooking and lifestyle habits or customs were deeply rooted in their culture and daily routines, so repetitive reminders or stimuli were necessary. The mothers' practices were also influenced by household access and availability to resources and services, thus CHAs or other program actors needed to be prepared to address these issues or provide alternative solutions.

Following the implementation of the practices by mothers at home, there was very little explanation about how the practices influenced a child's growth and nutrition, particularly among the local actors. After conducting the appropriate practices, it was assumed improved child growth and nutrition would simply result.

There was clearer understanding of how the activity proceeded to the outputs and immediate outcomes (knowledge and recall), but the intermediate outcomes (practice at home by mothers) were mostly assumed to lead directly to the final health and nutrition outcomes in children. Thus, the mapping of the impact pathways of the mothers' workshops elucidated the stepwise process of the activity and its impact as well as to identify gaps in understanding within the pathways.

Figure 2.7 Impact pathways of mothers workshops



[1]identified by interviewees at national or regional levels
[2]identified by interviewees at local level

2.4.4 Impact pathway of growth monitoring and promotion

Growth monitoring and promotion (GMP) was another activity within PNI's first program component (maternal and child health and nutrition). In PNI, GMP was both a community-based and clinic-based activity and was applied as an educational and promotional tool aimed primarily at mothers of young children. The impact pathway of GMP is shown in Figure 2.8, with the two moments that growth measurements are taken indicated in bold.

GMP was an activity performed regularly by CHAs within the community. CHAs were trained and equipped to measure and chart children's growth as well as to counsel and motivate mothers on a monthly basis. CHAs also used growth monitoring as an educational tool during mothers' workshops. Since GMP by the CHA was done in groups of mothers, local program actors mentioned that the sense of guilt and pride in the presence of peers helped to motivate mothers to action. CHAs also referred mothers to the local health establishment for regular child health check-ups, which included GMP performed by health personnel. Thus, GMP was reinforced in the community and in the clinic, and mothers were repeatedly informed of their children's growth status and what to do about it. Then they were reminded during home visits and other educational activities by CHAs and health personnel to stimulate their motivation.

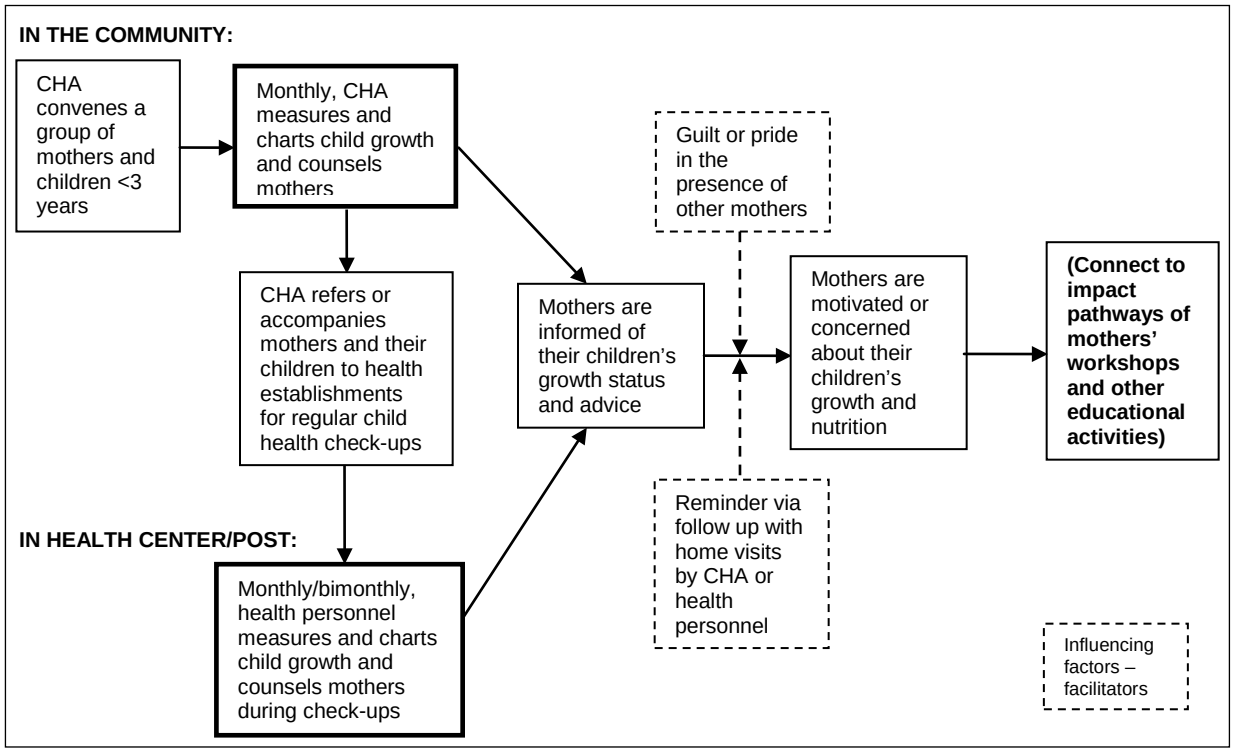


Figure 2.8 Impact pathway of GMP within PNI

PNI actors considered GMP to be an important activity within the overall program, as it motivated mothers to take action in improving their feeding and care practices. Community-based GMP performed by CHAs was strongly emphasized in the program. CHAs received training in anthropometric measurements from ADRA-Peru program staff and health personnel, and CHAs highly valued the ready capacity to make nutritional assessments and provide personalized counseling to mothers directly in the community. As a result of the community-based GMP, CHAs also felt empowered, since they got to handle data, and felt a sense of purpose in their roles. However, health personnel at local health establishments expressed doubts about the accuracy and precision of the growth monitoring data measured by CHAs and did not accept the measurements made by CHAs for any official record use. Still, the GMP impact pathways reveal that in PNI, the repetitive measurements and counseling coupled with follow-up reminders were connected to other educational

activities of the program and parts of the process involved in motivating mothers to participation and action.

2.5 Results of CARE-Peru's REDESA

2.5.1 Program overview

What is the program?

Sustainable Networks for Food Security (REDESA) was a five-year project (2001-2006) supported by USAID-PL 480 Title II program funds. REDESA focused on building networks of local organizations to achieve sustainable food security, based on combined interventions to increase income generation and improve health conditions.

Inasmuch as REDESA was a comprehensive integrated program involving entire communities, aimed at increasing access to incomes, health services, and water and sanitation, it included numerous activities. Its activities included training and technical assistance to small producers (i.e. on improving agricultural practices and raising small animals such as guinea pigs); installation of water systems and latrines; formation of community water boards to maintain water systems; biweekly or monthly educational sessions and food preparation demonstrations for mothers; community-wide communication activities (e.g. radio messages and programs, theatre performances, and community educational sessions); formation of community development committees to coordinate actions in health, nutrition, and sanitation; and formation of community surveillance systems for health, nutrition, agriculture, and sanitation conditions. The explicit strategies for REDESA were building networks and alliances, education, and communication.

According to the program documents, REDESA consisted of three major components: (1) income generation; (2) health, nutrition, water and sanitation; and (3) strengthening of civil society and local management. Activities within each component, through the strategies of building networks, education, and communication, were expected to result in six main intermediate outcomes: (1) increased access to credit; (2) increased training to improve agricultural production; (3) increased

access to markets; (4) improved maternal and child health and nutrition practices; (5) improved hygiene and sanitation practices; and (6) improved coordination of actions in nutrition, health, water and sanitation. The intermediate outcomes led to the final outcomes of improved health and nutritional status of children less than three years of age and increased family incomes. This general program model is shown in Figure 2.9.

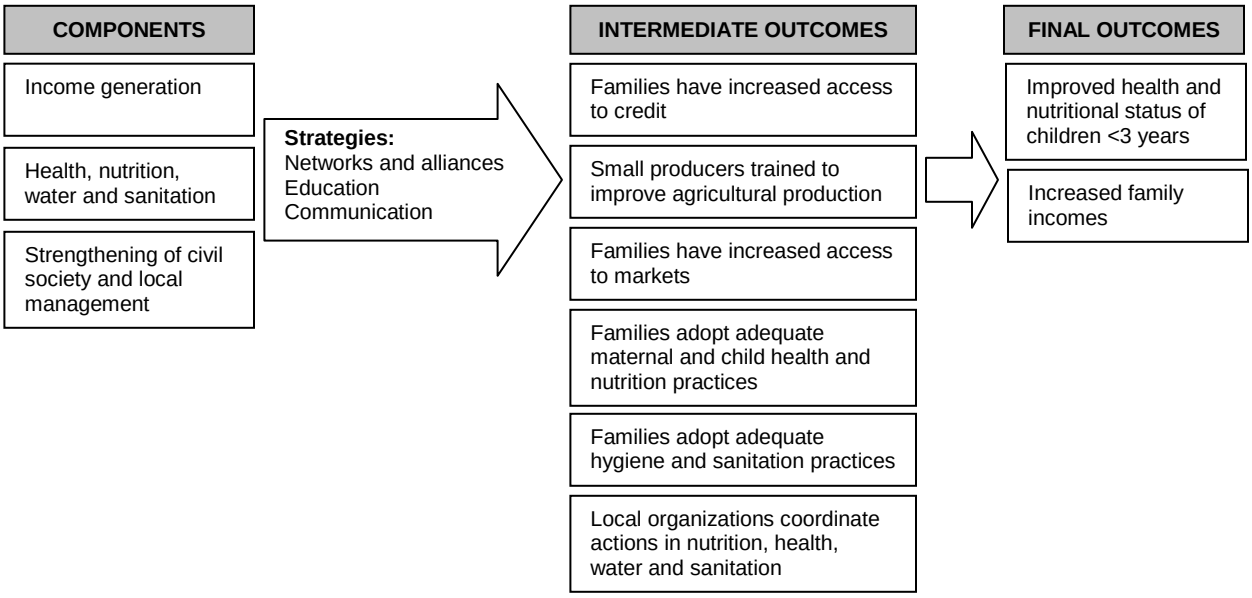


Figure 2.9 REDESA program model

The results framework of REDESA was presented in the program documents (Figure 2.10). In the results framework, increased family income was not presented as a goal, but rather, an intermediate result that led to improved capacity of families to access and use of foods, which results in reduced child malnutrition. Thus, there was a slight discrepancy between the general program model and results framework, or a lack of clarity in the logic connecting the end results, perhaps due to the simplified three-tiered leveling of the results framework. REDESA consisted of both upstream and direct interventions, and these relationships are not captured in either the general program model or results framework.

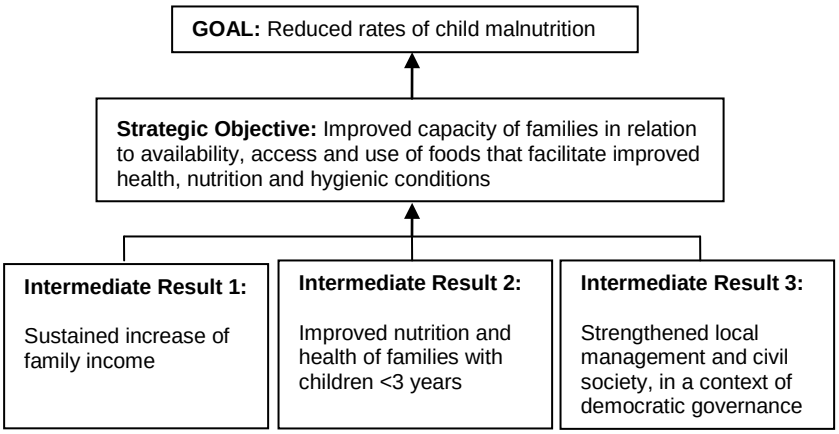


Figure 2.10 REDESA results framework

The explicit program model and results framework provide a general program overview. Although CARE-Peru program staff used a more detailed logistic framework to monitor progress of their activities, no greater detail on the relationship between the immediate, intermediate and final outcomes were provided in the program documents. CARE-Peru produced an extensive number of program documents (over 60 manuals, reports, and other documents) to "systematize" its experiences and lessons learned from REDESA, but there was no further documentation of a program logic model or framework.

Who is involved?

REDESA involved various community-based organizations (CBOs) and actors within the community, and its main target groups were mothers of children less than three years of age and small agricultural producers. REDESA also worked closely with public and private institutions and organizations at the district level. The organizational schema for REDESA is shown in Figure 2.11.

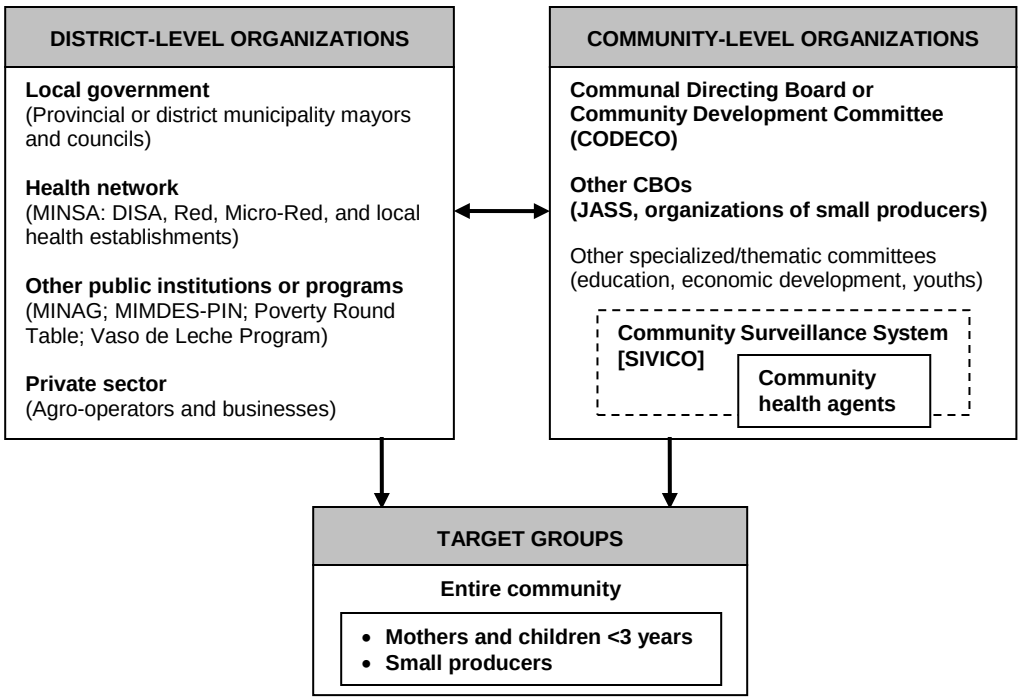


Figure 2.11 REDESA organizational schema at the local level

At the community level, REDESA tried to form a community development committee (CODECO) or coordinated with an existing communal directing board. A water board (JASS, for its acronym in Spanish) was formed to maintain the potable water system, and organizations of small producers were formed by types of agricultural crops and products. Community committees for education, youth, or other issues, and other community leaders were convened to participate in the program and coordinate in issues of health, nutrition, and sanitation. The entire community was involved and informed of the health and development status of their community (e.g. nutritional status of pregnant women and small children, access to water system and latrines, etc.) through the Community Surveillance System (SIVICO), which was updated and monitored directly by CHAs and/or local health personnel. The SIVICO consisted of charts and a physical mapping of the entire community in relation to the status of health and nutrition, water and sanitation.

At the district level, REDESA coordinated with the local government; the health network; other public institutions or programs involved in health, food or agriculture; and private institutions

and businesses connected to agriculture. REDESA advocated and coordinated with the local government to include activities related to food security in local participatory budgets and local development plans. REDESA coordinated with the different levels of MINSA (i.e. DISA, Red, Micro-Red, and local health establishments) in all activities related to health, nutrition, and hygiene. Rather than creating their own activities and materials on these topics, REDESA adapted or replicated and disseminated MINSA's materials and methods. REDESA also coordinated with other public institutions and programs, such as the Ministry of Agriculture (MINSA), the Integrated Nutrition Program (PIN), the Poverty Round Table or inter-sectoral coordinating forum against poverty, and the Vaso de Leche Program. Agro-operators and businesses were involved in economic activities, particularly where REDESA tried to connect small producers to the market.

2.5.2 Logical framework of local institutional capacity-building

Local institutional capacity-building is an overarching activity within the third component (strengthening civil society and local management) of REDESA's program model (Figure 2.9). The activity involves the strengthening of capacity among community actors to work together in health, nutrition, water and sanitation. This activity actually involves three interconnected sub-activities: the formation of Community Development Committees (CODECOs), development of Community Surveillance Systems (SIVICO), and training in leadership and governance. Program actors described the sub-activities together as one cohesive activity, so they were combined in the logical framework and later in the impact pathway.

The logical framework for local institutional capacity-building is shown in Table 2.4. The logical framework includes the rationale and assumptions, inputs, target population, outputs, and outcomes of the activity. The rationales for the activity were the need for attention and action of the entire community to improve child health and nutrition, and the importance of adequate leadership and governance for the effectiveness of related actions. It was assumed that gaps between the needs and actions of the various organizations in the community exist. In order to close these gaps, all the

community leaders and organizations met regularly (convened by the CODECO), learned about their community situation (through the SIVICO), exchanged ideas, and discussed a "shared vision" for their actions. Afterwards, local actors were expected to refocus or adjust their activities according to the "shared vision" as well as contribute to actions in a coordination plan, which in turn, was expected to result in improved child health and nutrition through the implementation of the different activities in health, nutrition, water and sanitation. Given that local institutional capacity-building is a broad upstream activity, the logical framework does not capture all the steps involved or the factors influencing the different steps. This illustrative framework reveals the large leaps in logic from the inputs to outputs, and the outputs to the outcomes.

Table 2.4 Logical framework of local institutional capacity-building

Rationale and assumptions	Resources/ Inputs	Activities	Target Population	Outputs	Proximal or Immediate Outcomes	Intermediate Outcomes	Final Outcomes
COMPONENT 3. Strengthening civil society and local management							
Improving child growth, health and nutrition requires attention and action of entire community Poor leadership and governance contribute to inefficiency and ineffectiveness of programs Gaps exist between needs and actions of various organizations	Trainers in leadership and governance Motivated and trained community leaders and local authorities Materials and supplies (e.g. charts, markers, poster papers) Refreshments Space or facility Transportation Time	Strengthening institutional capacity of community actors to work together in health, nutrition, water and sanitation (including formation of CODECOs, development of SIVICOs, and training in leadership and governance)	Community leaders, CBOs, NGOs, and community members	Local actors regularly participate in joint (inter-sectoral) meetings Local actors know and understand the health and nutrition issues and the current situation in their communities Local actors have "shared vision" of how to address the issues in their community Local actors aware of what others are doing, including own role and responsibilities Annual coordination plan	Local actors recall "shared vision" Local actors refocus and adjust their activities to align with shared vision – target groups, intended impact, routes to impact Local actors support and implement actions according to shared vision and coordination plan (Availability, access and quality of health services, foods, nutrition education, social communication, training, water and sanitation systems)	(See proximal and intermediate outcomes for all Activities under Component 2: -Social communication on child health and nutrition, water and sanitation -Biweekly or monthly educational sessions for mothers -Home visits -Promotion of access to health services (referrals to health services) -Training of community health agents -Installation of water systems -Installation of latrines -Organization and strengthening of JASS water board)	Child growth, health and nutrition improved

2.5.3 Impact pathway of local institutional capacity-building

At the core of REDESA's intervention strategies is the formation of relevant organizations and establishing networks and alliances among local organizations. In particular, the formation of the community development committee (CODECO) and the community surveillance system (SIVICO) to monitor the community health, nutrition, water and sanitation status were key activities. Based on the responses of all six REDESA program actors, the impact pathway for local institutional capacity-building to work together in health, nutrition, water and sanitation was elaborated (Figure 2.12). In the diagram, responses of national and regional actors and local actors are indicated by a superscript "1" and "2" respectively.

The national and regional program actors expressed a clear and cohesive understanding of the overall integrated components and the inter-sectoral focus of the program, specifically on building networks and strategic alliances. In describing program activities, actors at the national and regional levels used similar terms and expressed similar ideas. They provided relatively cohesive explanations of how the activities led to the immediate outcomes related to learning and knowledge, but little explanation as to how the immediate outcomes (behavior changes) connected to the final outcome of improving child health and nutrition. The two local actors expressed more fragmented views of the impact pathway.

Given the main assumption that there is poor organization, coordination, and leadership in the communities, particularly around the issues of health and nutrition, the first step of the activity involved sensitizing the community on the need for organization and coordination of local actions and training community members about CODECO and SIVICO. This first step relied on an external expert, introduced to the community by CARE-Peru or the local government. Once the community was convinced of the need for a community coordinating body related to health and nutrition and for a system to monitor the community around these issues, a CODECO or a similar organization and a SIVICO were formed. Local program actors mentioned that the intervention of the external expert

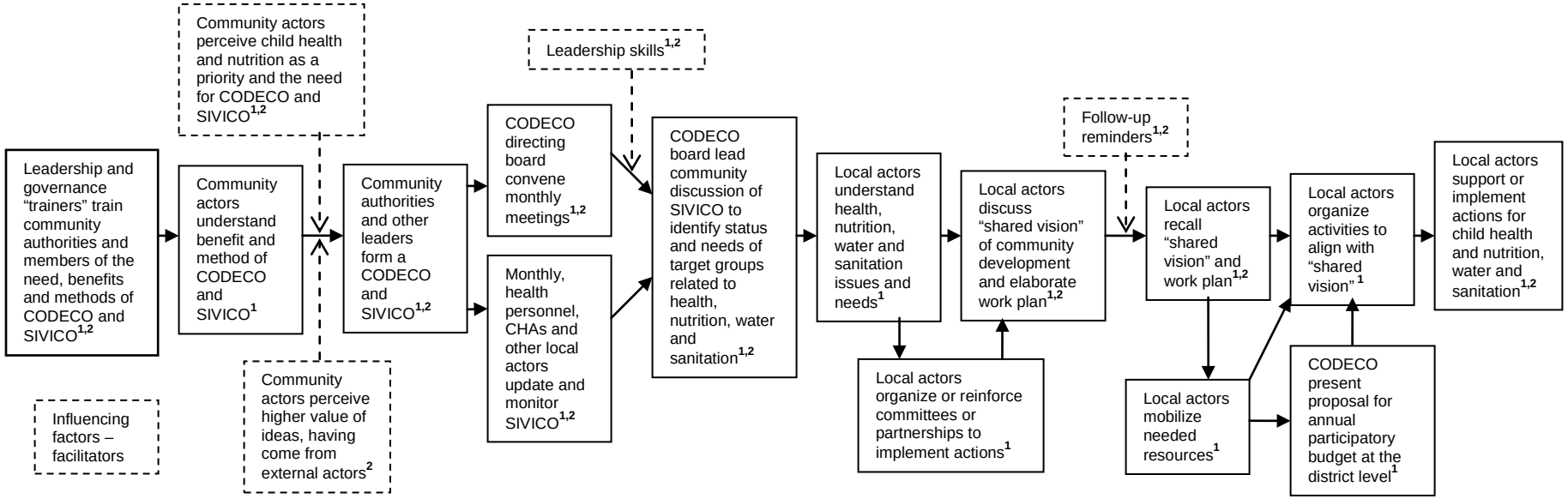
was important because when trying to change status quo, the community was more likely to listen to an external person. A higher value was placed on ideas delivered by external actors.

Health personnel, CHAs, or other designated local actors were responsible for updating the SIVICO regularly, so community members could see the ongoing situation in their community. CODECO leaders also needed to convene regular meetings to discuss the status and needs in their community. The continual proceedings of community coordination depended on the leadership of the CODECO.

Once local actors understood the issues and needs in the community, they discussed a "shared vision" of their community and developed a work plan for the year. After the CODECO meetings, local actors were expected to recall the "shared vision" and work plan, and organize and implement actions accordingly, mobilizing human, financial and other resources within their reach of influence. The collaborative effort in executing the community work plan required regular follow-up and reminders by the CODECO and other actors.

The pathway of this activity was described up to the point of the intermediate outcome, with the outcome of local actors working together to support or implement activities directly related to health and nutrition, water and sanitation. Since this activity was an upstream intervention, it was expected that this activity would lead to more efficient and effective implementation of other activities directly intervening at target groups, e.g. activities within the second component of the REDESA program model (Figure 2.9). This impact pathway, while incomplete, shows the stepwise process by which the local actors are expected to come together, monitor, and discuss the situation in their community, and work under some sort of shared plan.

Figure 2.12 Impact pathway of local institutional capacity-building



[1]identified by interviewees at national or regional levels
[2]identified by interviewees at local level

2.5.4 Impact pathway of growth monitoring and promotion

Within REDESA, growth monitoring and promotion (GMP) was as a clinic-based activity and solely part of the regular child health checkups provided by local health personnel. The impact pathway of GMP within REDESA is shown in Figure 2.13. GMP was a peripheral activity in the overall REDESA program. CHAs played the role of making referrals or accompanying mothers and children to the local health establishments to receive GMP.

In REDESA, GMP was applied as a motivational and promotional tool aimed at mothers of young children as well as the entire community. During the regular child health check-ups, brief individualized counseling was provided to mothers to interpret the growth charts, help them understand the status of their children, and provide short messages about what they should do. Also, health personnel updated the health and growth data for all young children and pregnant women in the community within the SIVICO, in order to build community awareness. Local program actors also indicated that the open surveillance system stirred the sense of guilt specifically among mothers, which acted as a motivator to action. In order to reinforce the understanding of their children's health and growth status, health personnel and CHAs also provided talks to mothers and followed up with home visits.

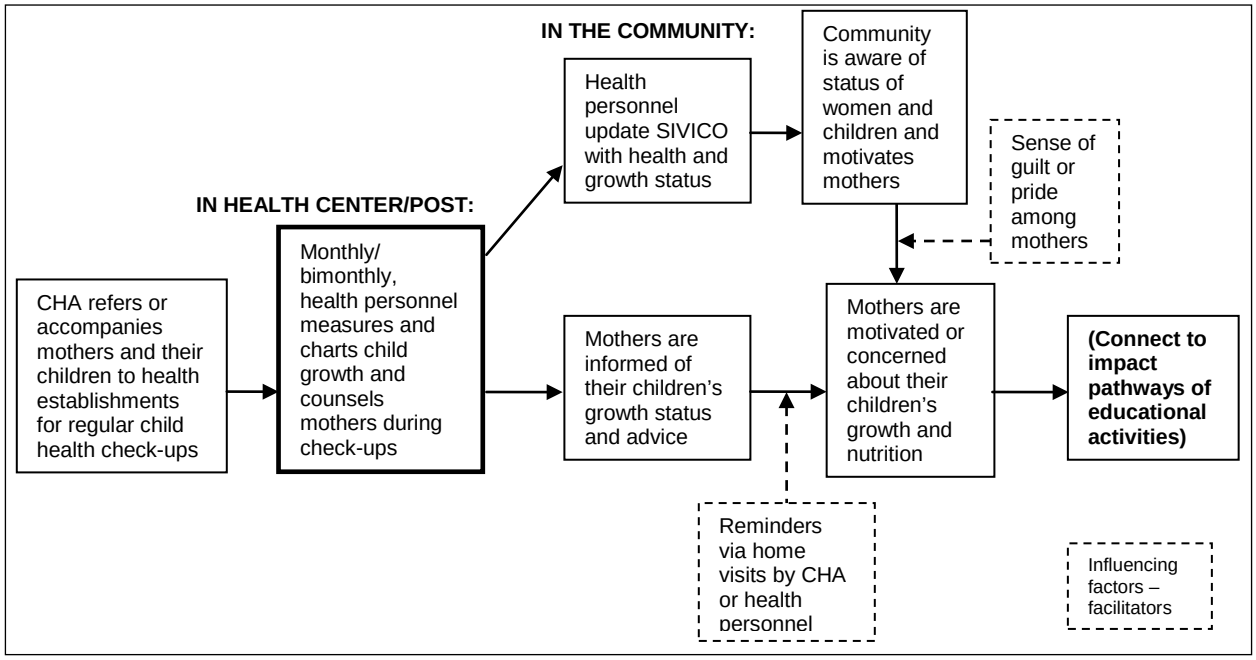


Figure 2.13 Impact pathway of GMP within REDESA

Within REDESA, CHAs were not trained or encouraged to perform GMP in the communities, since this activity was seen to require precision and accuracy in the hands of skilled health personnel. This impact pathway reveals that GMP was an activity handled by health personnel and a motivational and promotional tool used for mothers and the entire community.

2.6 Results of UNICEF's Good Start

2.6.1 Program overview

What is the program?

Good Start was an intervention program developed by UNICEF with a five-year funding support from USAID during the years 1999 to 2004. The first year was dedicated to formative research to design and assess the acceptability of the intervention activities and training of personnel. Thus, UNICEF actually continued its support in program operations until 2005.

UNICEF had a different mode of program implementation than ADRA-Peru and CARE-Peru. Rather than working directly with communities, UNICEF worked through regional NGOs or government health networks that delivered the Good Start program in the communities and provided direct support. Despite having the same donor (USAID), a program model or results framework for Good Start was not found in the program documents. Unlike ADRA and CARE, UNICEF also used different terminology to describe its programmatic elements. In the program documents, Good Start was described in terms of driving principles, thematic areas, intervention strategies, and process methods.

First, Good Start had four driving principles regarding the promotion of early growth and development [33]:

1- Initiated in the *earliest stage of gestation*;

2- Conceived as the *integrated delivery of health, nutrition, hygiene and psycho-affective stimulation* in the family and the community, in order to adequately meet a child's needs;

3- Targeted on *improving practices and the use of available resources*, particularly with regard to the inter-relationships between child care and growth and development; and

4- Places the responsibility on the *family and the community*, with their capacity to create demand for quality services and political support necessary to promote early growth and development in an integrated and sustainable manner.

Good Start was described as having four thematic areas: health, nutrition, prevention and management of common infections, and psycho-affective stimulation. The five strategies to achieve its final outcome of improved growth and development of children less than three years of age included research; training; communication, information and advocacy; monitoring of growth and development; and community surveillance. The seven main intermediate outcomes measured were: (1) improved growth and development monitoring; (2) increased coverage of prenatal checkups; (3) improved feeding and care practices during pregnancy and lactation; (4) improved breastfeeding and complementary feeding practices; (5) increased psycho-affective stimulation; (6) increased coverage

of iron and vitamin A supplementation; and (7) improved hygiene and sanitation practices. UNICEF also identified three cross-cutting processes in its program operations: management, capacity building, and resource mobilization. Despite the use of many different terms, we elaborated a general program model in the format similar to the previous two programs (Figure 2.14).

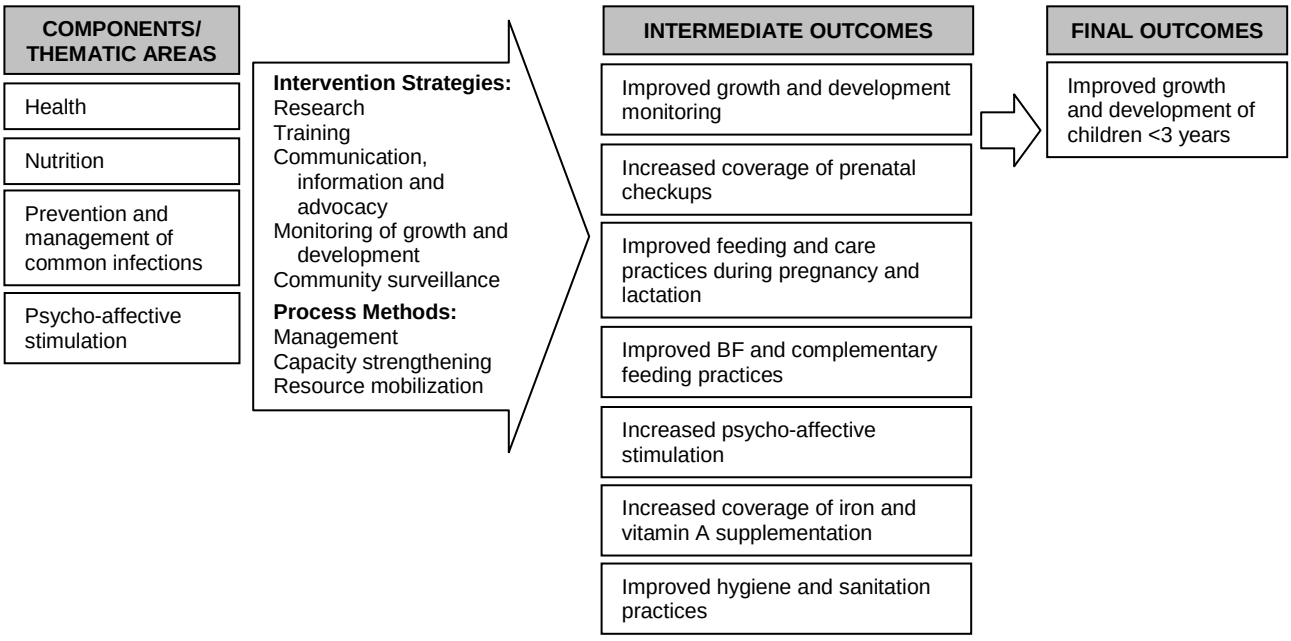


Figure 2.14 Good Start program model

Who is involved?

UNICEF worked with the project staff of regional NGOs and health officials and personnel at the regional to local levels. However, at the local level, the organizational schema for Good Start (Figure 2.15) was similar to that of PNI and REDESA.

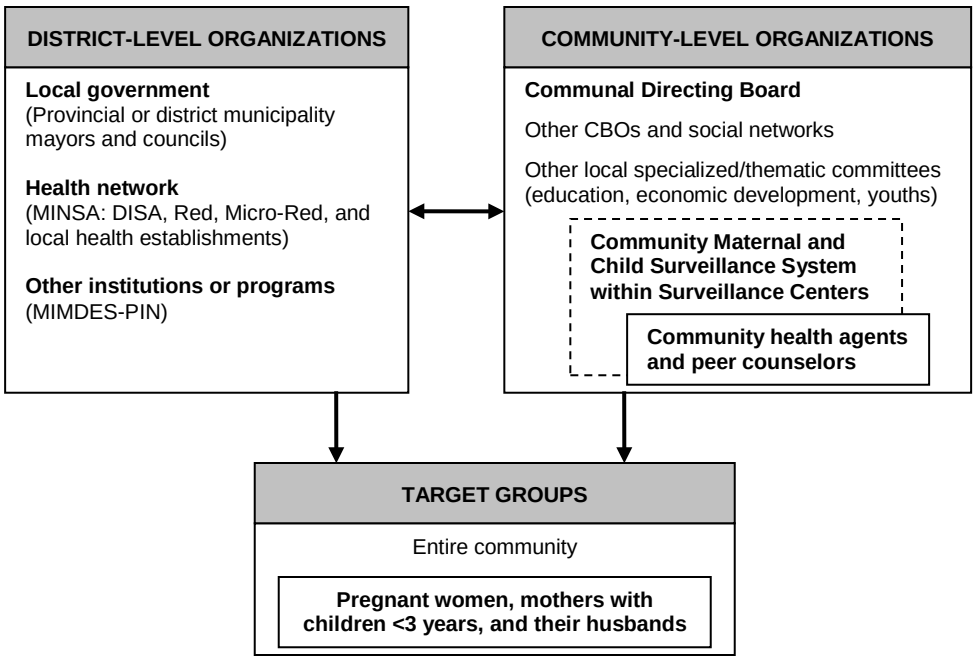


Figure 2.15 Good Start organizational schema at the local level

At the community level, the existing community directing board was involved in coordinating Good Start, along with other existing CBOs such as the community water board and various thematic committees. The entire community participated in social communication and other community-wide activities, and was informed of the maternal and child health and nutrition situation in the community through the Community Maternal and Child Surveillance System. The system was directly updated and managed by local health personnel with the support of CHAs. The surveillance system involved the identification, mapping, and registry of all pregnant women and small children in the community, and its charts and maps were posted at a surveillance center or communal house where mothers and children met regularly for educational and stimulation sessions. Local health personnel, CHAs, and/or peer counselors (formed in some communities) were involved in the direct educational activities with parents with small children. Although Good Start targeted the entire community, its primary target groups were pregnant women, mothers with children less than three years of age, and fathers.

At the district level, Good Start involved the local government, the health network, and other public institutions or programs related to health and nutrition. UNICEF with the regional NGOs advocated and coordinated with the local government in the implementation of activities related to Good Start and inclusion of activities related to child growth and development in participatory budgets and local development plans. UNICEF coordinated closely with the different levels of MINSA (i.e. DISA, Red, Micro-Red, and local health establishments), as activities in health, nutrition, prevention and management of common diseases, and psycho-affective stimulation were all areas of work of the government health system. Also, UNICEF directly trained health personnel to improve health services and to increase access and usage of health services, particularly by mothers and small children. UNICEF also coordinated with other public institutions and programs, such as the Integrated Nutrition Program (PIN), in the implementation of activities.

2.6.2 Logical framework of peer counseling and early stimulation sessions

As previously described, Good Start consisted of four thematic areas - health, nutrition, prevention and management of common infections, and psycho-affective stimulation. To address these thematic areas, program actors identified four main activities: social communication on health, nutrition, growth and development; counseling and early stimulation sessions at Community Surveillance Centers or at local health establishments; community surveillance of maternal and child health and nutrition; and training of community health agents and peer counselors. The logical framework for peer counseling and early stimulation sessions is shown in Table 2.5. Similar to the previous examples, we constructed the logical framework with the rationale, inputs, target population, outputs, and outcomes.

Rationale and assumption for peer counseling and early stimulation were similar to those for the mothers' workshops in PNI, i.e. lack of knowledge among mothers, and access and availability of foods. Thus, Good Start focused on education and on instructing parents about appropriate practices. Good Start also focused on methods of learning and materials that were socially and culturally relevant in the geographical region of the rural highlands. Thus, an in-depth formative research was

conducted prior to program implementation, resulting in methods and materials such as the use of peer counselors, instructional posters with photographs of local peoples, and stimulation toys using locally available materials. During the peer counseling and early stimulation sessions, health personnel made assessments, and then with CHAs and peer counselors, they facilitated discussions and practices related to health, nutrition, and psycho-affective stimulation with mothers and fathers. As a result, mothers and fathers were expected to recall and implement these practices in their homes, and seek timely health services. Thereafter, the intermediate outcomes in children and pregnant women were expected to be achieved, resulting in improved child growth and development. As with the previous logical frameworks, a logical sequence is presented, but the processes are not defined in the logical framework.

Table 2.5 Logical framework for peer counseling and early stimulation sessions

Rationale and assumptions	Resources/ Inputs	Activities	Target Population	Outputs	Proximal or Immediate Outcomes	Intermediate Outcomes	Final Outcomes
Mothers require knowledge and understanding of health and nutrition issues and how to address them Socially and culturally relevant methods of learning strengthen lasting knowledge and lead to appropriate and feasible solutions Access and availability of foods, facility and other resources to implement actions at the household-level exist (e.g., through social programs)	Trained health personnel Trained community health agents (CHA) and peer counselors Materials and supplies (e.g. stimulation toys, charts, photos, markers, poster papers) Space or facility Time Monitoring and supervision	Counseling and early stimulation sessions at Community Surveillance Centers or at local health establishments	Pregnant women and mothers of children <3 years and their husbands	Health personnel assess health and nutritional status of pregnant women and motor, language and emotional development of children Health personnel, CHA and/or peer counselors facilitate discussions on health, nutrition, and development, and practice activities related to psycho-affective stimulation Mothers and fathers informed of their children's health and growth progress and receive adequate and appropriate information on health, nutrition, development, and early stimulation	Mothers and fathers recall information and practices Mothers and fathers prioritize pregnant women and small children Mothers and fathers implement actions to prevent health and nutrition problems and promote growth and development (i.e., improved feeding, health and stimulation practices) Mothers recognize signs of health or nutrition problems Mothers seek out health services in a timely manner	Child receives EBF for 6 months, then consumes adequate and appropriate complementary foods with continued BF Child receives timely and adequate health attention (i.e., iron and vitamin A supplementation) Child receives appropriate care and stimulation Pregnant woman consumes sufficient and appropriate foods Pregnant woman receives timely and adequate prenatal care and health services	Child growth and development improved

2.6.3 Impact pathway of peer counseling and early stimulation sessions

The impact pathway of peer counseling and early stimulation sessions was constructed from responses of all nine Good Start program actors and is shown in Figure 2.16. Responses of the seven national and regional actors and the two local actors are indicated by a superscript "1" and "2" respectively.

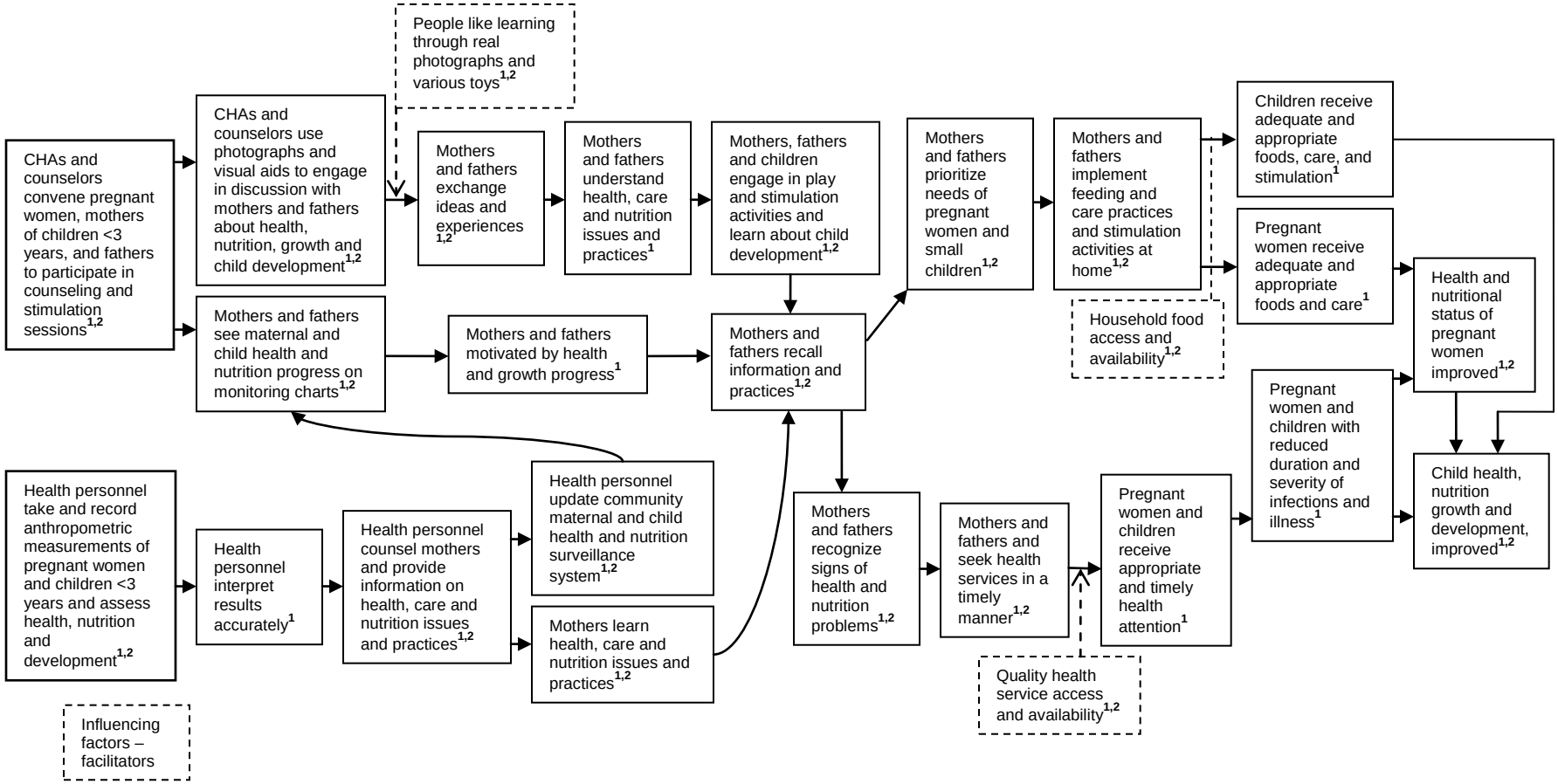
National and regional program actors included those from UNICEF and the regional NGOs. They demonstrated a clear understanding of the principles and thematic areas of the overall program as well as the pathways by which activities led to immediate outcomes related to learning and knowledge. The connections between the immediate, intermediate and final outcomes were short and direct, where adequate nutrition or feeding practices were expected to lead to adequate nutritional status and improved child growth and development. In the case of health, reduced illness or infection was identified as a mediator to adequate health and nutritional status. The views of the impact pathway by the two local actors were more fragmented. There was also little difference in the mention of factors that influenced the different steps of the activity between national and regional actors and the local actors.

There were several parallel events that constituted the activity of peer counseling and early stimulation sessions. First, health personnel conducted checkups of pregnant women and small children, including growth monitoring and health and development assessments (e.g. motor, language and emotional development). As part of the trainings provided by UNICEF, local health personnel were carefully standardized in anthropometric measurements and methods for maternal and child health checkups. Thus, health personnel usually interpreted the results accurately, in order to counsel mothers on health, care, and nutrition concerns and appropriate practices. The knowledge and understanding gained by mothers about these issues contributed to their recall of information and practices at home. Health personnel also used the assessment data to update the community surveillance system (i.e. charts posted in the Community Surveillance Center, a communal facility designated by the community for Good Start activities).

At the same time, CHAs and/or peer counselors convened pregnant women, mothers with children less than three years of age, and fathers to participate in the regular counseling and stimulation sessions. Health personnel, CHAs, or peer counselors facilitated participatory discussions around issues of health, nutrition, growth, and development, to aid parents in understanding these issues. During the sessions, parents were guided in play and psycho-affective stimulation practices. CHAs, peer counselors, and parents enjoyed the use of real photographs as a teaching tool and the different types of locally made toys, which facilitated participation during the sessions. The combination of participatory discussion and practices focused on early stimulation was expected to lead to the recall of information and practices at home. During the sessions, parents also observed maps and charts of their children's health and growth status. This public display was expected to build awareness and motivate parents to take action and reinforce recall and practices at home.

The immediate outcome of information recall by parents was expected to lead to various practices (intermediate outcomes). First, mothers and fathers would recall priority needs of pregnant women and small children, and implement adequate and appropriate feeding and care practices at home. These practices were influenced by household food access and availability. Second, parents would recognize any signs of health and nutrition problems and seek health services in a timely manner. This health-seeking behavior was influenced by access and availability of quality health service, and it was also expected that parents would increase their demand for quality health services. Both the improved feeding and care practices and health-seeking behavior led to improved health and nutritional status of pregnant women and small children, and improved child growth and development.

Figure 2.16 Impact pathway of peer counseling and early stimulation sessions



[1]identified by interviewees at national or regional levels
[2]identified by interviewees at local level

2.6.4 Impact pathway of growth monitoring and promotion

The impact pathway of GMP within the Good Start program (Figure 2.17) was very similar to that in REDESA. GMP was a peripheral clinic-based activity and part of the regular maternal and child health checkups at the local health establishments. Good Start emphasized the measurement of gestational weight gain as well as child growth. Health personnel were trained and standardized to take precise and accurate anthropometric measurements, interpret growth charts, and provide counseling. The role of CHAs and peer counselors was to make referrals or accompany pregnant women and their husbands, mothers and their children to the health establishments, in order to increase their access to essential health services.

GMP was applied as an educational and promotional tool aimed at pregnant women, mothers of young children, and fathers, as well as the entire community. In addition to individualized counseling, health personnel also updated the community surveillance charts on maternal and child health and nutrition (e.g. number of prenatal visits, maternal weight gain, children's growth status, etc.), in order to educate the community and build awareness. Unlike PNI and REDESA program actors that mentioned guilt and pride sensed by mothers, those involved with Good Start described communal responsibility and accountability as a motivator. Follow-up counseling and home visits were conducted by CHAs, peer counselors, or health personnel to remind families and reinforce health and nutrition-related messages. Thereafter, the pathway was expected to connect with the pathways of other educational activities of the program that specifically taught parents about appropriate practices that result in improved growth and development of children.

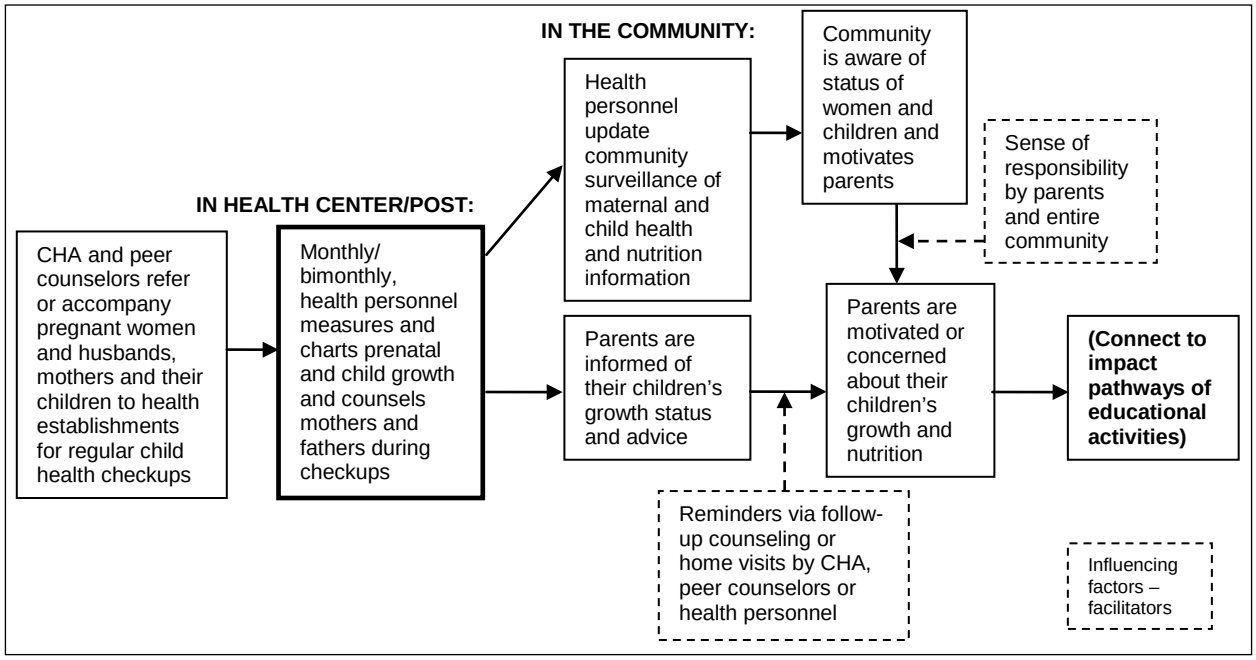


Figure 2.17 Impact pathway of GMP within Good Start

2.7 Discussion

2.7.1 Comparing program models, logical frameworks, and PIPs

The program models and logical frameworks serve to compare and contrast the three programs. PNI, REDESA, and Good Start shared three similar elements: (1) program activities were primarily implemented within the community, involving various local actors; (2) activities included education and communication in similar topics of maternal and child health, nutrition, and hygiene; and (3) some version of a community surveillance system to monitor progress of target groups was developed. Most evidently, the three intervention programs shared the same goal of reducing childhood chronic malnutrition.

Despite these similarities, each program had its unique approaches and focus. PNI focused on improving health and nutrition practices through educational sessions or workshops among groups of mothers led by community health agents. CHAs were key players in the program, as they directly led the educational sessions and conducted regular growth monitoring and promotion among mothers.

REDESA aimed at implementing an integrated approach to address food security, combining economic activities, installation of water and sanitation systems, health and nutrition education, and local network building. A community surveillance system to monitor the progress of these various components was developed, and the program emphasized the strengthening of leadership and coordination among local actors. Good Start focused on building capacity of parents and health personnel to address child growth and development, through *maternal* and child health and nutrition combined with care and early psycho-affective stimulation. Good Start involved mostly local health personnel, community health agents, and parents. Applying its locally appropriate methods and materials, it aimed at changing perceptions and practices to improve the physical growth and psycho-social development of children and established a maternal and child health and nutrition surveillance system to monitor the health status of all pregnant women and small children in the community.

Apart from permitting the comparison of strategies and activities of the intervention programs, the representations of program logic helped to reveal the perceptions among different levels of program actors about how the program (activities) works to achieve its results, particularly through the mapping of program impact pathways (PIPs). Although we combined data from all interviews per program to construct a single illustrative PIP for a key activity, we were able to identify segments of uniformity and heterogeneity in perceptions of the impact pathways among national and regional actors and local actors.

National and regional level actors, mostly project staff from ADRA-Peru, CARE-Peru, UNICEF, and other regional NGOs, had good understanding of the overarching frameworks and principles of their respective programs as well as the program components and activities. They demonstrated a strong coherence to the program documents. They provided similar cohesive responses and were able to articulate the impact pathways, showing strong standardization of the prescribed activities at these higher levels of program management and operations. Furthermore, program actors connected to NGOs and cooperation agencies had awareness and understanding of programmatic concepts and terms, and thus were more adept to respond to interview questions and

articulate their perceived PIPs. However, program actors at the national level identified fewer facilitators and barriers along the impact pathways than the local actors, revealing that the practical dimensions of the impact pathways were not as evident to planners and managers farther from the communities.

On the other hand, while program actors at the local level were more apt to provide practical examples of influencing factors or "incidents" that occur during implementation, the local actors provided little information about the overarching framework or principles of the program. They had difficulties in fully articulating their perceived PIPs, providing fragmented views of how the activities linked to their outcomes.

Similar patterns were found across the three programs, although the disparity in the articulation of impact pathways between national and regional actors and local actors was less striking in the Good Start program. Given that a major focus of the Good Start program was on locally adapted methods and formative research and extensive training were conducted prior to program implementation, program actors across all levels may be more aware and capable of articulating the processes and practical influencing factors involved in the PIPs.

Comparing the impact pathways of GMP

The utility of mapping impact pathways to observe differences in the positioning and use of a common activity within programs was revealed through the example of growth monitoring and promotion. Two different impact pathways of GMP were presented by the three programs. In PNI, GMP was an important community-based and clinic-based activity primarily for educating and motivating mothers to improve their feeding and care practices. Its community-based focus, where CHAs measured children's growth and counseled mothers directly in the community, helped to reinforce mothers to take action. In REDESA and Good Start, GMP was a peripheral clinic-based activity and an educational and promotional tool aimed at mothers of young children as well as the entire community. GMP was considered as a tool that should be handled by skilled health professionals. However, the

data were made available and visible in the community, in order to promote child health and nutrition in the entire community.

Within the simpler PNI program model that concentrated on education of mothers, GMP was placed as an important activity in the community and in the clinic. Within the more comprehensive program models of REDESA and Good Start, GMP was applied as an activity conducted only in the clinic as part of regular health services and mainly used for education and promotion in the community. While is it is unknown whether one impact pathway is more effective than the other, the different applications of GMP appeared suitably positioned within their overall program models and strategies.

2.7.2 Mapping PIPs

Methodology

Based on our experience, different methods for eliciting program impact pathways may be necessary at different operational levels. The interview method elicited more complete responses among national and regional program actors, who are trained or experienced to think in the language of program design and strategic planning. Actors at the local operational level were less familiar with "program language" and programmatic concepts, and we found that responses were sparse and fragmentary even when simple common language was used during the interviews. Thus, an interview process may not be the appropriate methodology for eliciting the PIPs among local actors. Group participatory processes, using visual aids, may be more effective for mapping the perceptions of those who are not normally accustomed to articulating about programs.

To reduce the length and frequency of interviews with program actors, initial PIPs could be constructed from program documents. Then, the initial PIPs could be discussed and revised with program actors. After a process evaluation or mid-program monitoring, the PIPs could be revised based on findings. In all cases, mapping of PIPs should be considered an iterative and dynamic process.

Utility

While program logic models and the logical frameworks provide a succinct overview of the program (for communication, strategic planning, and management), we found that PIPs provided a better representation of the connections between program activities and results, particularly where a combination of upstream and direct intervention activities were part of the same program (e.g. REDESA). PIPs demonstrated a more realistic and useful representation of the program, rather than the flat or leveled matrices or models that were bound within program elements or categories, which may facilitate program monitoring and evaluations involving causal pathways. Also, the perceived causal connections between the activity process and immediate outcomes related to knowledge and practice, and the gaps in the connections between intermediate and final outcomes were visually identified through the mapping of PIPs.

2.8 Conclusions

The use of program impact pathways provided a deeper look at the mechanisms by which activities were perceived to achieve their results. The illustrative PIPs provided a visual tool for tracking how activities were perceived to work and make an impact, bringing into focus the different pathways of the activities and influences along the way. Beyond the logical sequence of program inputs, outputs, and outcomes, the conceptualization of impact pathways is a useful approach to understand the causal connections required for impact and to identify where attention and reinforcements may be required within program operation. Greater effort to elicit the shared articulation of PIPs amongst actors at different levels, coupled with regular feedback of specific issues across the different operational levels, would help to reinforce the understanding of impact pathways across all levels. The utility of this tool also warrants its use not only during final evaluation but during mid-program monitoring and relevant assessments.

A question raised by these findings is the desirability of a common understanding of the goals and pathways by which these outcomes are achieved (“all sing the same song”), or whether diversity

in understanding is practical. Conventional wisdom would advise that common or harmonized understandings are useful for communication within and outside of the program. Yet, common understanding can also be built on diversity of perspectives, as long as they are shared and discussed. Literature from the field of organizational behavior stresses the relationship between homogeneity in organizational practices and organizational efficiency and effectiveness. However, taking diversity into account gives dimensions to common understanding, which guard against the ideological stances that "singing the same song" can entail. Furthermore, even though we found differences in the perceived PIPs among program actors across operational levels, the overall programs still proved to be effective in achieving their end results. Yet it is unclear whether program effectiveness may be improved through greater congruency in the PIPs. Future research should elucidate how congruency of PIPs among program actors across operational levels could be increased, and whether greater congruency would indeed improve program implementation and effectiveness.

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CHAPTER 3:

DO NGO-LED COMMUNITY-BASED CHILD NUTRITION PROGRAMS LAST? ASSESSMENT OF PROGRAM SUSTAINABILITY IN THE PERUVIAN HIGHLANDS

Abstract

With considerable resources invested in strategies to reduce global child undernutrition, donors and program actors question whether their programs are sustainable. We adapted a framework for assessing the characteristics of organizational routines (resources, adaptation, collective values, and rules) to evaluate several different child nutrition programs. We aimed to determine whether programs continue after project termination and the types of activities that are continued, and to further describe continued activities using the 4 characteristics of routines to assess their levels of sustainability. We studied 3 NGO-led community-based intervention programs to improve child growth and nutrition in the Peruvian highlands, 1-4 years after project termination. We conducted 103 interviews with actors involved in program implementation and 29 focus groups with mothers of children less than 3 years of age in 28 intervention communities between 2008 and 2009. By strict definition, we found no program sustainability, regardless of program type and years after project termination. Although the initial programs had disintegrated, some program activities continued in 9 communities, and these activities were of weak or medium sustainability. Our study method and findings provide a tool not only for evaluation but for program design and implementation to increase the likelihood of sustainability.

3.1 Introduction

Improving child growth and nutrition requires short- and long- route interventions implemented among target populations and sustained over an extended period of time [1]. Short routes such as direct interventions to target groups to improve knowledge and practices related to child health, care, and nutrition, as well as to provide immediate basic resources are necessary to stem and prevent the

problems of poor growth and child malnutrition. Long routes that address the basic causes of chronic malnutrition by improving the living conditions and quality of life of families and communities usually require more time and broader partnerships, but they should supplement direct interventions and are essential for generating support to caregivers and for long-lasting effects [2]. Based on evidence that child undernutrition causes more than one-third of child deaths and 11% of the total disease burden globally [3, 4], considerable resources toward these various intervention strategies are invested at all fronts – UN agencies, international to local NGOs, governments, private sector, and communities. And while the primary focus among program actors has traditionally been on determining effectiveness and efficiency, the question of "long-term viability of health intervention programs" has drawn increasing attention everywhere in the face of scarce resources [5]. People want to know if their programs are sustainable.

In public health and health promotion, sustainability refers to the continuation of programs, after project termination or the initial funding ends. Shediac-Rizkallah and Bone (1998) describe at least 3 perspectives on program continuation or sustainability: (1) maintenance of health benefits over time, (2) community capacity-building, and (3) continuation of the program activities within organizations [5]. While the first 2 perspectives address change among beneficiaries and the recipient community, the continuation of the initial program or its program activities is a fundamental process that requires change and maintenance within organizational structures involved in program implementation. This paper focuses on maintenance in program delivery to address the challenge of measuring program sustainability.

3.2 Organizational Routines as Measures of Sustainability

Literature on organizational change and innovation use the term "routinization" to describe the process of an innovation losing its separate identity and becoming part of an organization's regular activities [6-8]. Thus, routinization is considered the fundamental process in program continuation. Applying the definition of a "program" as a set of activities aimed at achieving an objective [9], Pluye and

colleagues (2004) posit that programs are routinized within organizations when objective-related activities are routinized [10, 11]. They proposed a simple method for assessing the presence of organizational routines to diagnose program sustainability [11].

Organizational routines are described by 4 characteristics: resources[1], adaptation, collective values, and rules. First, stable resources (financial, personnel, materials, etc.) are required for routines to become "memorized" in organizations [12-15]. Second, routinized activities are adapted to suit their contexts, while retaining their standard elements [16-18]. Third, routinized activities reflect collective values, beliefs, or cultures, which are manifested in cultural artifacts such as symbols, rituals, and language [15]. Lastly, routinized activities adhere to rules that govern action and decision-making such as supervision and corrective measures, guidelines, procedural manuals, or plans [14, 16, 19, 20]. Pluye and colleagues operationalized these 4 characteristics of routines to develop a 15-question interview method [11], which they applied in their study of the routinization of the Quebec Heart Health Project in 5 community health centers in 2000 [21]. Based on their results, Pluye and colleagues suggested 4 degrees of program sustainability based on the absence/presence of routinized activities: (1) the absence of sustainability; (2) precarious sustainability; (3) weak sustainability; and (4) sustainability through routinization [11]. While other advanced scale methods for assessing institutionalization and program sustainability have been developed [22, 23], we adapted this simple methodology by Pluye and colleagues for our study of NGO-led community-based child nutrition programs in Peru.

The specific objectives of our study were to determine whether program sustainability exists and the types of activities that are continued within intervention communities. We examined continued activities using the four characteristics of organizational routines to explore and assess their levels of sustainability.

[1] Pluye et al. identified the first characteristic of routines as organizational "memory," which is shared interpretations of experiences that influence present activities. We adapted this to "resources" that are required to support organizational memory.

3.3 Background

3.3.1 Intervention programs

We conducted an assessment of 3 child nutrition programs in Peru that used different approaches and strategies to achieve the same final outcome, i.e. reduced prevalence of chronic malnutrition among children younger than 3 years of age. These programs also focused primarily on behavior change without the distribution of food supplements. The 3 selected programs were ADRA-Peru's Child Nutrition Program (PNI, for its abbreviation in Spanish), CARE-Peru's Sustainable Networks for Food Security (REDESA), and UNICEF's Good Start [24-26]. PNI and Good Start focused directly on education and behavior change among caregivers, or the *short routes* to achieve impact, whereas REDESA focused more intensively on upstream factors, such as improving local governance and coordination, improving water and sanitation, and increasing family income, or the *long routes* to achieve impact [27].

All 3 programs similarly focused on intervening at the community level among mostly rural poor populations in the highland regions, where stunting prevalence is the highest in the country [28]. They were funded through 5-year project grants from USAID. Two of the programs (PNI and REDESA) received USAID P.L. 480 Title II program funds. Good Start, REDESA, and PNI terminated their funded project cycles in 2004, 2006, and 2007 respectively, and all 3 final evaluations showed reductions in stunting prevalence in the intervention areas (Table 3.1). Based on program documents and direct interviews with the initial program staff, program continuation through local organizations and actors was confirmed as a goal of all 3 programs. A summary overview of the 3 programs is presented in Table 3.1.

Table 3.1 Overview of the 3 community-based child nutrition programs [24-26]

	ADRA-Peru's PNI	**CARE-Peru's REDESA**	**UNICEF's Good Start**
Program period	Oct. 2002–Sep. 2007	Oct. 2001–Sep. 2006	Oct. 1999–Sep. 2004
Main activities	• Workshops for talks and demonstrations with mothers • Growth monitoring with counseling • Small economic activities among mothers' groups • Home vegetable gardens • Follow-up home visits • Training of community health agents	• Organization of local producers to increase access to markets • Training and technical assistance to improve agricultural production and business leadership • Social communication on child health and nutrition, water and sanitation • Educational sessions • Follow-up home visits • Promotion of access to health services through timely referrals • Training of community health agents • Construction of water systems • Construction of latrines • Organization of community water boards • Formation of community development committees • Training of community surveillance systems • Training in local leadership and governance	• Social communication on health, nutrition, growth and development • Counseling and early stimulation sessions at community surveillance centers or local health establishments • Community surveillance of maternal and child health and nutrition • Training of community health agents and peer counselors
Regions	Ayacucho, Cajamarca, Huancavelica, Huanuco, La Libertad, Ucayali (n=6)	Ancash, Apurimac, Ayacucho, Cajamarca, Huancavelica, La Libertad, Puno (n=7)	Apurimac, Cajamarca, Cusco, Loreto (n=4)
No. of program participants	22,128 children <3 years, 21,667 pregnant and lactating mothers	64,434 children <3 years, 58,570 families	75,000 children <3 years, 35,000 pregnant and lactating mothers
Total 5-year budget, funding from USAID	US$13,369,721	US$21,340,000 (US$33.50 per year per child intervened, for each percentage point reduction in stunting)	Not available (US$36.40 per year per child intervened, for each percentage point reduction in stunting)
% stunting (pre)	31.8 (2002)	34.2 (2002)	54.1 (2000)
% stunting (post)	26.2 (2007)	24.3 (2006)	36.9 (2004)
Percentage point difference	5.6	9.9	17.2

3.3.2 Implementing organizations

Various types of organizations were involved in the implementation of the 3 programs. Programs were designed and initiated by international NGOs (ADRA-Peru and CARE-Peru) and a UN agency (UNICEF). In the case of UNICEF's program, regional NGOs (e.g. Kusi Warma and Solaris) carried out its implementation. In all 3 programs, state, local, and community-based organizations were also involved in program implementation and were expected to sustain the programs in the long term (Table 3.2). A diagram of the local implementing organizations in their spatial locations at the district or multi-community, and community levels is shown in Figure 3.1.

Table 3.2 Types and examples of local implementing organizations

Type	Example
State institutions	Health center, health post
Local government	Municipality, community board of authorities
Community-based organizations	Community development committee, community water board, organization or association of small producers, mothers' group, community health agent

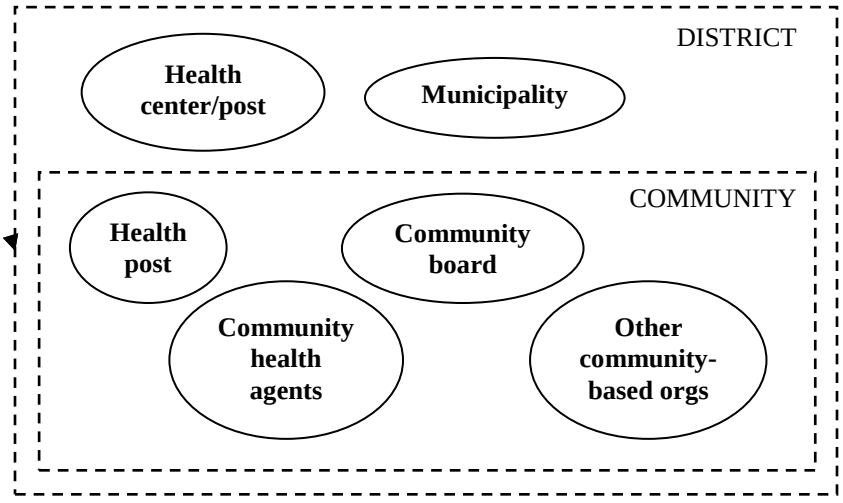

Figure 3.1 Spatial location of local implementing organizations

3.3.3 Preconceptions of program sustainability

Program documents of the 3 programs briefly outlined the continuation of intervention activities and health and nutrition practices by local organizations and actors [24-26]. Based on preliminary interviews for our study, national program actors of the external agencies also defined sustainability as the continuation of intervention activities:

> *Sustainability, we understand as our intervention continuing once the project ends. That is, with respect to families, mothers have adopted the practices. They are doing… when the community assumes the roles of community surveillance, continue with these activities of community surveillance, and the local government, when it implements or when it destines funds for training and continue those actions that we initiated. When someone adopts the project for its continuation. Not necessarily the entire project, as it was designed, but the principal activities and practices of the intervention.*
>
> ADRA-Peru program coordinator, August 27, 2008

> *Sustainability consists of the intervention activities continuing and even growing beyond what was at the end of the project. And that these activities are under the control of the populations and with the institutions that we worked with. Thus, if the activities continue being developed by the population, by the institutions, once the project ends, then for us, the service is going to continue beyond the presence of a project.*
>
> CARE-Peru program coordinator, September 9, 2008

> *Sustainability is this… the continuation of the intervention, at least the key intervention activities, beyond the end of the project.*
>
> UNICEF program coordinator, September 2, 2008

In terms of continued program delivery, there are different roles and activities at the district and community levels. As community-based intervention programs, most of the activities directly intervening among beneficiaries are implemented by community-level organizations and actors. However, district or multi-community level organizations are expected to take on the roles and responsibilities mainly provided by the external agencies. They should reinforce intervention activities with financial and materials support, training, and supervision.

3.4 Method

We conducted data collection between November 2008 and September 2009, i.e. 1, 2, and 4 years after funded project termination of the PNI, REDESA, and Good Start programs respectively. Each

community constituted a study case and served as the unit of analysis. For each case, data were collected from various points, since communities were both comprised of similar sub-units (organizations and families) and nested within larger entities (districts). We also aggregated data across communities within programs to analyze and make inferences about each program. We conducted semi-structured interviews with program delivery actors, focus groups with mothers, structured observations of the community environment, and collection of secondary demographic and health service data. In 2007, we conducted a preliminary study based on document review, interviews with initial program staff, and observational site visits, in order to characterize the program models and impact pathways of the 3 initial programs (Chapter 2).

Interviews to determine program sustainability were conducted with 4-6 actors involved in program implementation at the district and community levels (i.e. municipality officials, local health staff, community leaders, and community health agents). Interview respondents included those representing the various local implementing organizations (Table 3.2). Focus groups were conducted with groups of 5 mothers with children less than 3 years of age, for the purpose of triangulating the responses of program actors from interviews.

Interview and focus group participants were first asked to identify all ongoing child nutrition or food security programs and activities in their communities. Where respondents were familiar with PNI, REDESA, or Good Start, they were asked whether any of the ongoing activities were connected (i.e. initiated or reinforced) to these programs. Where respondents had no or little recall of the initial programs, the study team inferred the connections based on knowledge from the preliminary study. Given the numerous intervention activities throughout the country, an important initial step was to distinguish what was and was not part of the initial programs. Subsequent questions were directed to any ongoing activities suspected to be continued from the initial programs. Thus, identification of continued activities was based on respondents' direct recall and/or by matching to the initial program models.

Where any continued program activity was identified, the interview proceeded with the 14 questions pertaining to the characteristics of routines (resources, adaptation, collective values, and rules) and 1 question about institutional standard (Figure 3.2). The questions were adapted from those operationalized by Pluye and colleagues. [11]. The 15 questions were also adapted with simpler language for local actors, translated into Spanish, and back-translated into English, so as not to lose their intended meanings. In addition to the 15 main questions, we included probing questions to further characterize the responses (Figure 3.2).

RESOURCES

1- **Human resources:** Who is responsible for this *activity*?
[Probing questions related to type, quantity, qualification, responsibility, training, periodicity/turnover, and diffusion of activity]

2- **Financial resources:** Are funds used to conduct and maintain this *activity*?
[Probing questions related to source, sufficiency, previous availability, and future availability]

3- **Materials and supplies:** Are materials and supplies used to conduct and maintain this *activity*?
[Probing questions related to type, adequacy, sufficiency, previous availability, and future availability]

4- **Facility and other resources:** Is a permanent facility or space or other resources used to conduct and maintain this *activity*?
[Probing questions related to type, adequacy, sufficiency, previous availability and future availability]

ADAPTATION

5- **Adaptation to organizational context:** Are changes or adjustments made to this *activity* to fit the context of the organization?
[Probing questions to describe examples and identify any relevant adaptations or barriers]

6- **Adaptation to activity effect:** Are changes or adjustments made to this *activity* according to its effects?
[Probing questions to describe examples and identify any relevant adaptations or barriers]

COLLECTIVE VALUES

7- **Explicit objectives:** Does this *activity* have any written objectives?
[Probing questions related to type]

8- **Symbols:** Are symbols such as logos or representative images used for this *activity*?
[Probing questions related to type and purpose]

9- **Specific language:** Are specific language such as jargon or names used for this *activity*?
[Probing questions related to type and purpose]

10-**Rituals:** Are there rituals such as periodic meetings related to this *activity*?
[Probing questions related to type, purpose, and frequency]

RULES

11-**Formal supervision:** Is there formal supervision for this *activity*?
[Probing questions related to type, source, and frequency]

12-**Formal planning:** Is this *activity* included in the formal planning process of the organization?
[Probing questions related to type and frequency]

13-**Task descriptions:** Is this *activity* included any task description?
[Probing questions related to type and source]

14-**Written procedures:** Are there any written procedures on how to conduct the *activity*?
[Probing questions related to type and source]

STANDARDS

15-**Public policy:** Is this *activity* backed by a public policy, ordinance, or law?
[Probing questions related to type and source]

Figure 3.2 Interview questions related to the characteristics of routines

The initial program coordinators from ADRA-Peru, CARE-Peru, and UNICEF provided lists of communities that participated in their final evaluations. Then, we purposively selected

communities that met 3 criteria: (1) full program implementation during the funded project period; (2) no current presence of the initial NGOs; and (3) within 4-hour driving radius of the capital cities of the highland regions of Ayacucho, Cajamarca, and Cusco. Of the 32 preselected communities, we collected data from a total of 28 communities – 12 PNI, 9 REDESA, and 7 Good Start communities. Four communities were dropped during fieldwork because they were either too geographically remote or was confirmed as not having participated in the programs. The communities varied widely on characteristics such as population size and access to services and resources. A total of 103 interviews and 29 focus groups were conducted. Interviews lasted about 2 hours, and focus groups lasted about 40 minutes. Interviews and focus groups were conducted in Spanish (or with translation for Quechua speakers), digitally recorded, and transcribed. The research was approved by the Cornell University Institutional Review Board and the Nutrition Research Institute in Lima, Peru. Verbal consent was obtained from all participants prior to the interviews and focus groups.

A set of 4-6 interview transcripts and 1 focus group transcript constituted a single community case. For each question, transcripts were coded according to construct names or codes such as "human resource type," "human resource turnover," and "adaptation to effect," for one or more continued activities. Coding and organization of transcripts were conducted using Atlas.ti qualitative data software by 3 standardized coders, and clusters of quotations by code were reviewed and discussed for each community case in discussions among the coders and the research team. The main results for each characteristic of routines and institutional standard were derived from binary outcomes (presence/absence of qualitative evidence for each question) [11].

Furthermore, we derived the level of sustainability of activities as follows: (1) *No sustainability or absence of any continued activity*: Activities that become unrelated to the initial program objectives are also included in this category. (2) *Weak sustainability or absence of routines*: Some of the program activities are continued, but they do not meet the four characteristics of routines (resource, adaptation, collective values, and rules), regardless of whether they are integrated into any institutional standard. (3) *Medium sustainability or presence of non-standard routines*: Some program

activities meet the four characteristics of routines, but they are not integrated into institutional standards. (4) *Strong sustainability or presence of standardized routines*: The continued program activities are standardized routines.

3.5 Results

After project termination and the end of the support from external agencies, the cohesive "program" identity, as a series or collection of activities, no longer existed in any of the intervention sites. The initial programs had disintegrated, but some individual activities were preserved and continued. Of the 28 total communities, 9 communities had any continued activities, while 19 communities had no continued activities (Table 3.3). There was no difference between the 2 geographical regions for either PNI or REDESA.

Table 3.3 Number of communities with and without continued activities

Program	Region	No. communities with any continued activities	No. communities with no continued activities
PNI	Ayacucho	2	4
	Cajamarca	2	4
REDESA	Ayacucho	2	3
	Cajamarca	2	2
Good Start	Cusco	1	6
	Total:	**9**	**19**

The inventory of all the continued program activities is presented in Table 3.4. Of the 12 PNI communities, 4 had continued activities, primarily related to educational talks about child nutrition and food preparation demonstrations led by the community health agent (CHA) or few staff members from the Municipality. Even in the 1 community where more than 1 activity was continued, all were led by the CHA. Of the 9 REDESA communities, 4 had continued activities, either related to the potable water system and/or talks by the CHA. Among the 7 Good Start communities, 1 had

continued activities led by the CHA. In all cases, none of the continued activities was connected to an official program or received institutional support.

Table 3.4 Number and types of continued activities by community

Program	Community	No. activities	Activity and implementing organization/actor
PNI	A	1	• Monthly talks about child nutrition by community health agent (CHA)
PNI	B	1	• Talks and food preparation demonstrations twice a year by Municipality program staff
PNI	C	1	• Talks and food demonstrations every 1-2 months by CHA
PNI	D	5	• Biweekly talks and food demonstrations by CHA • Monthly growth monitoring by CHA • Communal gardening by CHA • Embroidering and weaving by CHA with mothers directing board • Maintenance of mothers group by CHA with mothers directing board
REDESA	E	2	• Maintenance of community water board by users • Maintenance of potable water system by community water board
REDESA	F	4	• Monthly talks about child nutrition by CHA • Maintenance of community water board by users • Maintenance of potable water system by community water board • Maintenance of community development committee by community board
REDESA	G	2	• Monthly talks about child nutrition and food demonstrations by CHA • Maintenance of potable water system by community water board
REDESA	H	3	• Maintenance of community water board by users • Maintenance of potable water system by community water board
Good Start	I	2	• Monthly meetings for early stimulation sessions by CHA • Home visits for follow-up by CHA

The most common reason for program discontinuation was that the NGOs simply left. In nearly all of the 19 communities with no continued activities, actors responded matter-of-factly, so as to imply that the end to the programs was a natural course following the NGOs' departure from their communities. The second most common reason was the lack of motivation (due to lack of incentives) among mothers and beneficiaries to participate in meetings and other activities. As children of participating mothers grew up, no new program participants were recruited.

Other reasons for program discontinuation were the lack of visible effect or benefit from the programs, failure of programs to change community consciousness, and lack of integration with the local health center. Mothers in one community shared, "when [NGO] was here, we cleaned our houses. But now that they are gone, we do not do it. When [NGO] was here, 'they're here!' 'They're coming!' And we cleaned up quickly. But now, we have forgotten. Everything is the same." One nurse technician at a local health post explained, "[NGO] came, and then left us. They measured weights and heights and gave us the results, but everyone worked in their own place… nothing changed."

Some actors identified other NGOs that entered their communities with new programs, and other state programs were seen as substitutions that implemented similar types of activities. Within the communities, there was lack of leadership around child nutrition within the community and lack of support to the CHAs. CHAs slowly quit their health-related activities and stopped meeting with beneficiaries because of their own work, and poor relationship between the local health staff and the CHAs was identified as the reason for CHAs to abandon their activities.

While most communities no longer supported any program activities, we found other remaining elements of the initial programs. In nearly half of the communities, there were materials such as anthropometric equipment and educational materials (posters, flipcharts, etc.) still in place, although they were no longer in use or were used for other purposes and activities. Actors recognized that health promoters, community leaders, and other members were sensitized and trained (thus knowledgeable) about topics of health and nutrition. In 1 community, mothers who participated in the initial program continued to meet together for other activities. In many communities, mothers were identified as continuing practices in improved child feeding and care, as well as embroidering and weaving learned during the initial programs. Other continued practices by the general community and families were identified, such as less alcohol consumption, proper use of family income, cleaning of homes and public spaces, consumption of clean drinking water, use of improved cookers and latrines, maintenance of home vegetable gardens, and raising small animal (guinea pigs and ducks). Few

communities were recognized as having better attitudes about vaccinations and other health services and greater participation. Children who benefitted from the initial programs were considered to be less timid, less frequently ill, and doing better in their studies.

3.5.1 Sustainability of PNI activities

Communities A, B, C, and D continued to support activities connected to PNI. The activities were related to education and behavior change to improve child health and nutrition practices among caregivers, particularly through talks and food preparation demonstrations. Activities in communities A and B were not routinized, lacking any evidence of collective values and rules, in contrast to the routinized activities in communities C and D. None of the activities was backed by a public policy or standard (Table 3.5). Therefore, both communities A and B demonstrated weak sustainability with their continued but non-routinized activities, while communities C and D were medium sustainability with routinized activities.

Table 3.5 Summary of continued PNI activities according to the characteristics of routines

Characteristics of routines	Community A (talks)	Community B (talks and demos)	Community C (talks and demos)	Community D (talks, demos, etc.)
Resources				
1.Human resources	1 community health agent (CHA)	1 Municipality program manager and 1 field worker	4 CHAs	1 CHA
2.Financial resources	No formal budget	No formal budget	No formal budget	No formal budget, but 5 soles (~USD 2.00) collected from mothers for food demos
3.Material resources	Various ADRA materials	Various materials from ADRA and Municipality	Posters from MoH, recipe books from ADRA, and utensils and cooking materials from CHAs and mothers	Various materials from ADRA, flipchart from CARITAS, and utensils and cooking materials from CHA and mothers
4.Other resources	None	None	None	Small plot of land near CHA's house used for communal garden
Adaptation				
5.Adaptation to context	Reduce topics and frequency, and integrate with other program meetings (i.e. JUNTOS)	-Municipality staff alone conduct activities directly in all communities -Reduce frequency because do not work with CHAs	-Incorporate lessons from MoH to ADRA messages on nutrition and feeding -Flexible times and locations due to CHAs' jobs/mothers' requests	-Combine lessons from various sources -Adjust time to CHA's work schedule and topics in discussion with mothers
6.Adaptation to effects	Ask for mothers' opinions, but no longer monitor child health cards	Make verbal indications and alternatives after discussions with mothers during home visits	None	Ask questions after meetings and conduct home visits to check and reinforce mothers' understanding
Collective values				
7.Explicit objectives	None; part of regular functions	None; part of regular functions	None; part of regular functions	None; part of regular functions
8.Symbols	None	None; only Municipality logo	Apron to represent food demos	Green ADRA vest worn during activities
9.Jargon/language	None	None	None	Collective identity as mothers' group with directing board
10.Rituals	None	None	Debriefing meetings with health post nurse	Songs at start of each meeting
Rules				
11.Formal supervision	None	None	Health post nurse	None
12.Official planning	None; discussion with health post during the first of each year	None; discussion with beneficiary mothers	None; discussion with mothers and health post nurse	None; discussion with mothers
13.Task description	None	None	None	None
14.Written procedures	None; based on memory and previous experience	ADRA and MoH manuals and booklets	ADRA manual	Manuals from ADRA and CARITAS
Routinized activities:	No	No	Yes	Yes
Institutional standard				
15.Public policy	None	None	None	None
Institutionalized activities:	No	No	No	No

Resources. In communities A, C, and D, CHAs were responsible for conducting the activities in their communities, once or twice a month. None of the CHAs were paid, but they voluntarily worked for more than 10 years in their positions, with CHAs in communities B and C having more than 20 consecutive years of experience. In community B, 2 staff members from the Glass of Milk Program of the district municipality were responsible for continuing educational talks and demonstration sessions in the 12 communities of the district. Since many CHAs in the district quit their positions and stopped conducting these activities, the 2 staff members were alone to reach the community only once or twice a year. All of the actors responsible for the activities had previously worked with the PNI program. Materials necessary for conducting the activities were available in all the communities. Although no formal budget existed for these activities, the CHA in community D collected a small amount of funds (up to 2 US dollars) from mothers to purchase items for the food preparation demonstrations and designated a plot of his own land exclusively to plant vegetables for the communal garden.

Adaptations. There were adaptations made to the activities in all the communities. Rather than convening mothers for separate meetings, the CHA in community A integrated her talks about child health and nutrition during meetings for other programs such as JUNTOS, the national conditional cash transfer program. CHAs in communities C and D incorporated the various lessons about child nutrition, feeding practices, and other topics from different sources (e.g. PNI, other NGO programs, and Ministry of Health). The CHA from community D explained,

> "one [flipchart] about nutrition was given to me by CARITAS [NGO], and the one for children was given to me by ADRA-Peru. Also, ADRA-Peru gave me a recipe book… flipchart about family planning from CARE-Peru. These are what I have for giving talks… if I mix topics, the mothers do not understand. So, one Sunday I talk about nutrition, another Sunday about family planning… from all the different institutions."

The CHAs also conferred with mothers to determine the best times and locations for their regular activities. In communities A, B, and D, actors mentioned that mothers were asked questions after every activity to check their understanding and also their opinions about topics and format to make adjustments to activities.

We also found evidence of mis-adaptations in communities A and B. In both communities, actors drastically reduced the frequency of activities due to their time constraint with other work, and one actor also mentioned reducing the topics or messages during her talks. Actors recognized these changes were made reluctantly to the detriment of the activities' effects.

Collective values. Although actors considered the activities as regular functions that define their roles, none of the activities corresponded to explicit objectives. There was no evidence of collective values in communities A and B. However, CHAs in communities C and D wore an apron or the green ADRA vest as symbols for their activities. CHAs in community C had regular meetings with the health post nurse to debrief about their talks and food preparation demonstrations. In community D, the CHA and mothers had their own ritual; "we start with a little song that is for God, then we start the talk… I am not evangelical, but I believe in God… and some [songs] CARITAS taught us, others [songs] ADRA also." The group of mothers also identified themselves as a "reflectorio" (or refectory), a word introduced by CARITAS, and nominated a directing board among themselves to lead the group and assist the CHA in the activities.

Rules. Formal supervision was conducted only in community C, where the health post nurse often visited the community to observe the CHAs' activities. However, the activities were not integrated into any official planning process of the local health post or the community board in any of the communities. Activity planning was usually done in informal discussions with the health post staff and beneficiary mothers, but mostly planning was done alone by the implementing actors. Furthermore, there were no written descriptions of tasks or activities as part of the actors' positions. Even in community B, where activities were conducted by Municipality staff members, we found that the activities were not officially integrated into the organization;

> "honestly, [Municipality colleagues] always see social programs as a waste of time… but at least the mayor, he discusses with me. In various occasions, he told me he included some materials in the budget, to teach, to speak about nutrition… yes, there is political will… even though I am not a nurse, he [mayor] does not marginalize me. He always tells me to teach, organize activities, and he supports in this… but in my work contract, the nutrition activities are not included; they are not specified."

In communities B, C, and D, actors relied on procedural manuals or guides for the activities from ADRA, Ministry of Health, or other NGOs. There were no such written rules in community D.

3.5.2 Sustainability of REDESA activities

In all 4 communities with continued activities, there were similar activities related to maintaining the potable water system and the maintenance of the water board that manages the water system in 3 communities. These activities related to water were routinized but not backed by a public policy (Table 3.6a). We also found educational talks about child health and nutrition in communities F and G, food preparation demonstrations in community G, and maintenance of the community development committee (CODECO) were continued in community F. The educational talks given by CHAs in community F were routinized, but neither of the other 2 activities were routines. There were no public policies supporting any of the activities (Table 3.6b). In summary, communities F and G had various continued activities of weak to medium sustainability. In communities E and H, there were only water-related activities with medium sustainability.

Table 3.6a Summary of continued REDESA activities related to water according to the characteristics of routines

Characteristics of routines	Community E	Community F	Community G	Community H
Resources				
1.Human resources	5 water board members, 1 contracted operator, 160 users	5 water board members, 20 users	6 water board members, 1 contracted operator	6 water board members, 60 users
2.Financial resources	2 soles (~USD 0.75) monthly quota per user; ~200 soles total collected monthly	2 soles (~USD 0.75) monthly quota per user; 30-40 soles total collected monthly	1.5 soles (~USD 0.50) monthly quota per user; ~450 soles total collected monthly	1 sol (~USD 0.33) monthly quota per user; ~60 soles total collected monthly
3.Material resources	Various materials for cleaning and repair	Various materials for cleaning and repair	Various materials for cleaning and repair	Various materials for cleaning and repair
4.Other resources	None	None	None	None
Adaptation				
5.Adaptation to context	Reduce frequency of board meetings and less participation due to members' jobs	None	None	Change board members when they do not complete functions
6.Adaptation to effects	Establish rotating schedule with 2 other communities using same water reservoir and adjust chlorination	Fix problems via commissions based on comments/complaints by users	Inspect with users, discuss and solve problems during general assemblies	-Adjust after inspections with users -Plan for system expansion for additional users
Collective values				
7.Explicit objectives	General assembly act and water board manual from CARE	General assembly act and water board manual from CARE	General assembly act and water board manual from CARE	General assembly act and water board manual from CARE
8.Symbols	Logo of little faucet with water droplet	None	None	None
9.Jargon/language	"Water is life" and the name JASS	The name of JASS	The name of JASS	The name of JASS
10.Rituals	Regular board meetings	Trimester board meetings and special meetings as necessary	Monthly board meetings	Monthly general assemblies with users
Rules				
11.Formal supervision	None	None	None	Municipality engineer surveys system every 3 months
12.Official planning	Board meetings and assemblies with users	Assemblies with users	Board meetings and general assemblies every 3 months	Assemblies with users and coordination with Municipality engineer
13.Task description	Manual from CARE	Manual from CARE	Statute of water board and manual from CARE	Statute of water board and manual from CARE
14.Written procedures	Manual from CARE	Manual from CARE	Manual from CARE	Manual from CARE
Routinized activities:	Yes	Yes	Yes	Yes
Institutional standard				
15.Public policy	None	None	None	None
Institutionalized activities:	No	No	No	No

Table 3.6b Summary of other continued REDESA activities according to the characteristics of routines

Characteristics of routines	Community F (talks)	Community F (CODECO)	Community G (talks and demos)
Resources			
1.Human resources	2 community health agents (CHA)	6 CODECO board members	1 CHA
2.Financial resources	None	None	None
3.Material resources	Flipcharts from health post, papers and pens	None	Utensils, soaps, and office materials from Municipality, and foods for demos from mothers
4.Other resources	None	None	None
Adaptation			
5.Adaptation to context	None	Loss of food security focus, but meet to discuss community and needs	-Incorporate messages from PREDECI to lessons learned from CARE -Integrate talks during other program meetings (i.e. PREDECI)
6.Adaptation to effects	Adjust topics and reinforce messages after home visits and checking child health cards	None	Adjust and reinforce messages by asking questions after meetings and follow-up home visits
Collective values			
7.Explicit objectives	None; part of regular functions	None	None; part of regular functions
8.Symbols	Image/picture of a happy child and a sad skinny child from MoH	None	None
9.Jargon/language	None	The name of CODECO	None
10.Rituals	None	Meetings twice a year	Evaluations of activities with rubric form from CARE
Rules			
11.Formal supervision	Monthly monitoring visits by health post staff	None	None
12.Official planning	Meetings with health post	Meetings with all institutions and organizations working in community	None; occasional discussions with JUNTOS promoter
13.Task description	Booklet of functions from health post	None	None
14.Written procedures	None; based on memory from trainings	None	None
Routinized activities:	Yes	No	No
Institutional standard			
15.Public policy	None	None	None
Institutionalized activities:	No	No	No

Resources. In communities E, F, G, and H, 5-6 water board members were appointed by users to serve for 2 years in managing the potable water systems. A monthly quota was paid by each household of users to pay for necessary expenses such as purchasing materials for chlorination and cleaning and repair of the water reservoirs, water pipes, valves, etc.

In communities F and G, continued educational talks and food preparation demonstrations were led by CHAs. The CHAs in community F had voluntarily worked for 8 years, while the CHA in community G had 18 years of experience and was hired at the Municipality a few years ago to manage the Glass of Milk program and continue her activities as CHA. All had previously worked in the REDESA program. While no funds were available for the activities, they used various materials and supplies acquired through the local health post or the Municipality. In community G, mothers also brought foods from their homes to be used for food demonstrations. In community F, the CODECO established during REDESA was maintained by 6 board members appointed by the community leaders and other organizations and institutions working in the community. CODECO served as a discussion and planning forum to build consensus and plans for community development, and its board members served for 2 years. The committee had no formal budget or materials.

Adaptations. Adaptations to water-related activities were identified in all the communities. In community E, water board members negotiated with 2 other communities that used the same water reservoir and established a schedule for rotating maintenance and services. They also adjusted the location of the chlorine dispenser according to the chlorine levels along the water system. In community F, actors mentioned that small commissions were sent to fix problems based on regular feedback from users. In communities G and H, inspections were conducted with users and problems were regularly discussed and resolved during general assemblies and meetings. One actor explained, "every month we have meetings to see how the water… already people go to see if the system is working well or not, or if it is bad, a broken tube… then there we talk about what to do, on what day." In community H, the board members also developed proposals to submit to the Municipality for the expansion of the water system to incorporate new users. Evidence of mis-adaptation was also found in

community E, where actors stated that board meetings were held less frequently, and only few members participated in meetings and undertaking tasks, due to time constraint from other work.

In communities F and G, we found adaptations made to the educational talks and food preparation demonstrations. In community F, the CHAs conducted home visits to follow up on children's health and nutrition status and checked health cards, then adjusted the topics and messages during their talks according to needs and priorities. In community G, the CHA incorporated messages learned from PREDECI (regional child nutrition project) to lessons learned during REDESA, and educational talks were also conducted during other program meetings, such as PREDECI. The CHA also adjusted messages and advice after asking questions to verify mothers' understanding and capacity during meetings and home visits. She specified, "[I] make little variations to what CARE taught us, for example, the quantities… CARE taught us 2 to 3 spoonfuls [of food] to children at 6 months, twice a day. And now, for example, PREDECI trained us and said it should be 4 to 5 spoonfuls, 2 to 3 times a day." In community F, we found that the CODECO had lost its original focus on food security needs, but it was still discussing other community development needs and priorities. While the CODECO continued to meet for part of its intended purpose, it was mis-adapted and changing to become less relevant to the topic of food security.

Collective values. Various evidence of collective values existed for the water-related activities in communities E, F, G, and H. In all the communities, explicit objectives for maintaining the community water systems were discussed and recorded in the general assembly meeting acts as well as being written in the water board manual provided by CARE-Peru. All the water boards maintained the name JASS ("Junta Administradora de Servicios de Saneamiento," or administrative board of sanitation services) and held regular board meetings as well as general assemblies. In community E, a logo of a little faucet with water droplet designed with CARE-Peru was used to represent the water-related activities.

There were no explicit objectives for the other continued activities in communities F and G. However, in community F, the CHAs used a picture of a happy healthy child and a sad skinny child

from the Ministry of Health materials to represent their educational talks. For the CODECO, its name provided by CARE-Peru continued to be used, and its members met twice a year to conduct its activities. In community G, the CHA continued to use the evaluation form provided by CARE-Peru after her activities: "After the talk or demonstration session, as CARE taught us, for example did in trainings… they did an evaluation of the event, sad face, crying face, or another that I didn't listen, that I didn't understand… [I] followed in doing this."

Rules. Only community H had formal supervision for the maintenance of the water system. An engineer from the municipality came to the community every 3 months to survey the system and coordinate with the water board. Other evidence of rules corresponded to the water-related activities in communities E, F, G, and H. Official planning of the water board activities and the maintenance of the water system were conducted in regular board meetings and general assemblies with the users. Tasks descriptions and procedures for the activities were explicitly included in the statutes of the water boards and manuals provided by CARE-Peru.

The educational talks in community F corresponded to various rules. The CHAs had a close working relationship with the local health post staff, who also worked in REDESA. The health post staff came to the community to supervise the CHAs' activities, and the CHAs regularly planned their activities with the health post. The health post staff also provided the CHAs with a booklet of their roles and responsibilities. The CODECO in community F received no supervision and did not rely on any written task description or procedures of their activity. However, the CODECO conducted meetings to develop work plans with the various organizations and institutions in the community. There was no evidence of rules corresponding to the educational talks and food preparation demonstrations in community G. The CHA's activities did not pertain to any official rules, and the CHA was left alone to plan and execute her activities.

3.5.3 Sustainability of Good Start activities

Only 1 community (I) continued to support Good Start activities. The early stimulation sessions for small children and their caregivers and home visits had characteristics of routines but were not supported by an institutional standard. Thus, these activities had medium sustainability (Table 3.7).

Table 3.7 Summary of continued Good Start activities according to the characteristics of routines

Characteristics of routines	**Community I (stimulation sessions and home visits)**
Resources	
1.Human resources	1 community health agent that also works as promoter of early education with pay of 100 soles from the NGO Ayuda en Acción
2.Financial resources	None
3.Material resources	Various educational and stimulation materials from UNICEF, health post, and Ayuda en Acción
4.Other resources	Room in community center that functions as the nutritional surveillance center
Adaptation	
5.Adaptation to context	-Incorporate own ideas with songs and stories and early education lessons learned from Good Start and Ayuda en Acción -Reduce frequency due to CHAS's other work
6.Adaptation to effects	Reinforce messages after observing and checking for changes in children's behaviors
Collective values	
7.Explicit objectives	None; part of regular functions
8.Symbols	None
9.Jargon/language	Words and concepts of early stimulation now commonly used
10.Rituals	None
Rules	
11.Formal supervision	None; occasional questions by health post and Ayuda en Acción
12.Official planning	Discussion with community board in community assemblies and coordination meetings with health post and Ayuda en Acción
13.Task description	None; depend on indications of functions from Good Start and Ayuda en Acción
14.Written procedures	Early stimulation manual from UNICEF, early education manual from Ayuda en Acción, sheet/form for home visits from Ayuda en Acción and health post
Routinized activities:	Yes
Institutional standard	
15.Public policy	None
Institutionalized activities:	No

Resources. One CHA was responsible for conducting the continued activities in community I. The CHA had been working voluntarily for 10 years in his position, but a year ago, the CHA was hired part-time by the NGO Ayuda en Acción as the promoter of early education. He received pay

(approximately US$ 34 per month, based on activities) from the NGO to instruct early education to children, but he also continued his role as CHA. Apart from his pay from Ayuda en Acción, there was no formal budget for the CHA's activities. The CHA used various educational materials and toys and other materials for stimulation received from UNICEF, the health post, and Ayuda en Acción. The community also designated a room in the community center exclusively as the nutritional surveillance center for early stimulation and nutrition activities.

Adaptations. During the monthly early stimulation sessions, the CHA made adaptations by incorporating his own ideas to lessons learned from Good Start and Ayuda en Acción:

> "There, we stimulate the children and talk about nutrition and complementary feeding. We talk about these topics, now on the third week of August, on Saturday, each month… Ayuda en Acción and also Good Start trained us how to teach mothers, how to start with the children, how to greet and say good-bye… we add, for example, my ideas, a song, a short story."

The CHA also observed the children's actions and checked their achievement of physical development during the stimulation sessions and his home visits, and then reinforced messages or lessons based on needs and priorities. However, due to his regular work and with the added responsibility as the promoter of early education, the CHA reduced the frequency of his activities, particularly the home visits.

Collective values. Early stimulation was a concept and activity introduced to community I by the Good Start program, but it has become common language. The CHA pointed out, "everyone knows, says early stimulation, early education with the children." The common use of words and concepts related to early stimulation was the only evidence of collective values.

Rules. The CHA did not receive any formal supervision for his activities, except for occasional questions from the health post and Ayuda en Acción. However, he formally planned his activities with the board of community leaders in community assemblies. He also discussed and coordinated his early stimulation sessions and home visits with the local health post staff, and coordinated the early education meetings with Ayuda en Acción. While there was no written task description for his work

as CHA, the CHA relied on manuals and guides from various sources (UNICEF, Ayuda en Acción, and the health post) to execute his activities.

3.6 Discussion

Despite having selected a sample of communities with strong likelihood of program continuation, our study revealed that none had program sustainability by strict definition [10, 11], regardless of program type and years since project termination. Whole programs as the sets of activities were not preserved, and only a few activities from the initial programs remained. All the continued activities in our study fell into Pluye and colleague's category of "precarious sustainability," where "actors maintain some residual activities on an informal basis as part of their functions in the organization, but this is completely unrelated to the program" [11]. Although the official "program" identity was lost in all the communities, we assessed continued activities for the characteristics of routines to determine their degree of sustainability, in order to measure and compare variations at the activity level.

In both PNI and Good Start program communities, the continued activities were few in number and types. Activities in these communities were related to educational or behavior change interventions directly with mothers or caregivers, mainly led by the CHAs. These activities were of either weak (non-routinized) or medium (routinized) sustainability. Activities of weak sustainability were vulnerable to changes and termination in the short term, while medium sustainability provided assurance of maintenance in the medium term. Among activities of weak sustainability, there was a lack of evidence for collective values and rules. Given that CHAs and their activities are not formally integrated into any organization, i.e. among themselves or the health system, it is not surprising that the characteristics of routines that relate to organizational management are those lacking. Although CHAs provide emergency and primary health support and assistance in the community and are common through the country, they are not officially incorporated into the government health system. CHAs are appointed by their communities and function on a voluntary basis. They are primarily accountable to their communities, but as promoters of health and intermediary agents between the

community members and the health system, they are connected to the formal health system only insofar as the local health staff reach out and incorporate them. As actors involved in service delivery, CHAs are vulnerable to radical changes in the short term, and the future of their work is uncertain. Continuation of their activities often depends entirely on the initiative of these actors.

Compared to PNI and Good Start communities, there were more number and types of continued activities in a REDESA community. Since REDESA was an integrated program involving various intervention strategies and activities, more activities were expected to be continued. However, the degree of sustainability of REDESA-related activities led by CHAs was similarly weak as those in PNI and Good Start, while all of the water-related activities were of medium sustainability. The maintenance of the potable water system and the water board that manages the system in the communities were consistently routinized. While they are not formally supported outside of the community, the water boards were organizations with explicit resources, adaptations, collective values, and rules. Household access to potable water was also highly valued as a basic necessity by the communities, and water-related activities had wide participation and support from the community. In the 5 REDESA communities with no continued activities, 4 of the communities' potable water system and/or water board existed prior to CARE-Peru's support or were established with the support of the national government and other agencies. In 1 community, the water board and community completely abandoned their activities and neglected the water system.

Our study methodology was simple and useful for assessing the conditions of program activities [11]. The first important step was to understand the initial intervention program, its activities, and their processes to achieving impact, in order to identify the remnants of the program after project termination. Here, we found the utility of initially mapping the program impact pathways (Chapter 2). After listing all ongoing programs and activities related to health, nutrition, and food security, continued program activities were tracked to their origins. The degree of sustainability was determined based on the presence or absence of one or more evidence of the characteristics of routines and institutional standards, through the interview of the 15 main questions. We interviewed various

actors involved in program implementation and delivery of the activities to validate results. By repeating our methods in several communities in 3 different programs, we found variations in our results by communities yet similarities across programs. The application of this methodology and grading of sustainability at the activity level were useful for evaluating the resistance and endurance of activities (via characteristics of routines) and comparing among them.

Our study had several limitations related to measurement and interpretation. Recall of the initial programs depended not only on individual characteristics but the periodicity or turnover of actors within implementing organizations. Several generations of actors may have passed even within a few years. For example, some staff members in local health establishments are transferred annually. In the municipality, the mayor is elected every 4 years, but most staff members are contracted for 6 months to 1 year. Within the community, many leadership positions are changed every 2 years, while the duration of CHA appointments is undefined. Erratic turnover of actors within short time periods was also common in the various context of our study. There was a limitation of language and comprehension among actors from rural community contexts. Some study participants were not familiar or comfortable with technical terms related to programmatic elements, so we used simple words and language in these situations, which did not elicit the same breadth and depth of responses among different organizational actors. Furthermore, responses to interview questions related to stable resources and rules presented clear and concrete evidence of these characteristics. However, evidence of adaptation and collective values were more difficult to elicit, as some actors could not recall specific examples. To reduce error of non-responses related to these characteristics, there were several related questions in the interview. We were also limited in our interpretation of mis-adaptations. Lastly, our study results did not present any evidence for effectiveness of continued activities.

If the goal of a program is sustainability, particularly the continuation of program activities within organizations, our study method and findings provide a tool not only for evaluation but for program design and implementation to increase the likelihood of sustainability. We believe routinized activities lead to better sustainability outcomes. And common findings across the sustained activities

of medium sustainability suggest that the designation of individuals specifically responsible for the program activities, access to funds and materials either through regular budgets or users' fees, capacity to adapt to the context or effects of the activities, official planning and/or regular supervision, and the existence of written procedures for activities are likely the minimum conditions necessary for continuation of program activities. We recommend that these minimum conditions and other characteristics of routines be considered during program planning and implementation.

In conclusion, our study results showed the absence of continued activities in most communities of child nutrition programs, a few short years after project termination. In the 9 communities with continued activities, the activities were of weak and medium sustainability. There were no continued activities of strong sustainability, thus none of the activities were assured maintenance in the long term. Our study proposed a valid method for assessing the sustainability of intervention programs in the developing country context. Future research should involve study design to test the causal effects of routinization on strengthening health and nutrition intervention programs for long-term maintenance.

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CHAPTER 4:

WHAT INFLUENCES THE SUSTAINABILITY OF COMMUNITY-BASED CHILD NUTRITION PROGRAMS?

Abstract

Background. The long-term viability of public health and nutrition programs is a desired goal of governments, donors, program implementers, and beneficiaries. Yet, there is little empirical evidence of how to influence program sustainability, particularly within developing countries.

Objective. To elucidate the influential factors that matter in the sustainability of 2 community-based child nutrition programs in the Peruvian highlands.

Methods. We used pattern matching to inferentially test a set of theoretical propositions against observed patterns of factors that influence program sustainability. We used data from 94 semi-structured interviews with various program delivery actors (municipality officials, local health staff, community leaders, and community health agents) and 22 focus groups with mothers with small children, conducted in 21 communities of 2 different intervention programs.

Results. In ADRA's program with sustained activities primarily implemented by community health agents (CHAs), we found patterns of factors associated with sustainability in the CHAs and few patterns in the community context. There were no patterns and generally negative conditions for sustainability related to the initial program and the community directing boards. There were more sustained activities implemented by different local organizations in CARE's program. In result, we found patterns of factors associated with sustainability across all contextual levels. There were also positive conditions of factors related to the initial program, community directing boards, water boards, and CHAs. Thus, the forms and types of influential factors on sustainability reflected the forms and types of sustained activities. The 3 common influential factors related to the initial program were: broader participation of the community, positive perception of program impact, and intentional actions at exit from communities. The 6 common organizational factors associated with sustainability

included: integration within organizations, coordination with other groups, higher skills level and training, community support/positive perceived value of work, stronger work motivation, and champions for child nutrition. The 4 common community factors were: perception of problem, community integration, valuing of child nutrition, and champion for child nutrition.

Conclusions. Our proof of concept confirms the congruency of the conditions and patterns of factors associated with program sustainability to the initial program models and findings of sustained activities. We suggest that a specific sustainability goal should be determined as part of program design and implementation, to intentionally influence the contextual factors and achieve program sustainability.

4.1 Introduction

The long-term viability of public health and nutrition programs is a desired goal of governments, donors, program implementers, and beneficiaries. Yet, there is little empirical evidence of how to influence program sustainability, particularly within developing countries. A 2005 systematic review of 19 studies on sustainability of health-related projects in Canada and the United States confirmed the lack of a common research paradigm, shared analytical methods, or even a common terminology [1]. However, the review showed consistent support for 5 common factors influencing sustainability – program adaptation, presence of a champion, compatibility of program to the organization's mission, perceived benefits of the program, and support from stakeholders [1]. These and other findings reinforce the idea that a study of the influential factors of program sustainability is necessarily a study of the different contextual factors involving the characteristics of the program itself and the settings surrounding it [1-6].

In public health and health promotion, sustainability refers to the continuation of programs, after project termination or the initial funding ends. Shediac-Rizkallah and Bone (1998) proposed an inclusive framework for conceptualizing sustainability of community-based health programs, which can take on different forms and states depending on: (1) the initial program design and implementation

characteristics, (2) the factors related to the involved organizations, and (3) the socioeconomic and political influences in the broader community [7]. The authors developed their framework based on the review and synthesis of diverse literature on multiple perspectives on sustainability [7]. We apply these 3 groups of influential factors on sustainability for a proof of concept. We conducted a study to elucidate the theoretically derived factors that matter in the sustainability of 2 different community-based child nutrition programs.

4.2 Methods

In order to determine the sustained activities in community-based child nutrition programs, we previously assessed sustainability of three effective intervention programs in Peru (Chapter 3); two of which are used for our present study. ADRA-Peru's *Child Nutrition Program* and CARE-Peru's *Sustainable Networks for Food Security* program were 5-year projects funded by USAID with the same goal of reducing childhood chronic malnutrition, implemented from 2001-2007 and 2000-2006 respectively. ADRA's program focused directly on education and behavior change among caregivers, or the *short routes* to achieve impact, whereas CARE's program focused on these short-route interventions and *long routes* through environmental factors such as improving local governance and coordination, improving water and sanitation, and increasing family income. The program models and impact pathways of these programs are discussed in a separate paper (Chapter 2). The program sustainability assessment found few communities with any sustained activities. There were continued activities in only 4 out of 12 ADRA communities, mostly with only 1 activity sustained per community, and in 4 out of 9 CARE communities, with 2-4 activities per community. ADRA's continued activities primarily related to educational talks about child nutrition and food preparation demonstrations by community health agents (CHAs), and CARE's continued activities related to the potable water system, the community development committee, and talks by CHAs (Chapter 3).

Data collection was conducted between November 2008 and September 2009, i.e. 1 and 2 years after funded project termination of ADRA and CARE's programs respectively. We collected

data from 21 communities – 12 ADRA and 9 CARE communities – from the highland regions of Ayacucho and Cajamarca, Peru. Each community constituted a study case and served as the unit of analysis. For each case, data were collected from various points, since communities were both comprised of similar sub-units (organizations and families) and nested within larger entities (districts). In each community, we conducted 4-6 semi-structured interviews with actors involved in program delivery, a focus group with mothers, and structured observation of the community environment. A total of 94 interviews about the various contextual factors related to program sustainability were conducted with actors involved in program implementation at the district and community levels (i.e. municipality officials, local health staff, community leaders, and community health agents). And 22 focus groups were conducted in groups of 5 mothers with children less than 3 years of age. Interviews lasted about 2 hours, and focus groups lasted about 40 minutes. Interviews and focus groups were conducted in Spanish (or with translation for Quechua speakers), digitally recorded, and transcribed. The research was approved by the Cornell University Institutional Review Board and the Nutrition Research Institute in Lima, Peru. Verbal consent was obtained from all participants prior to the interviews and focus groups.

4.2.1 Data analysis by pattern matching

The review of 19 studies showed the most common use for data collection were surveys through the mail or telephone, and most studies took an inductive approach of describing differences between high and low or non-sustained program sites [1]. We analyzed the data using pattern-matching logic to inferentially "relate, link, or match a theoretical pattern to an observed or operational one." [8]. Our theoretical patterns for pattern-matching are based mainly on a set of theoretical propositions derived from Shediac-Rizkallah and Bone's framework for conceptualizing program sustainability [7]. First, we divided the 21 communities into 4 groups, by NGO (ADRA or CARE) program type and communities with and without sustained activities, as follows:

ADRA communities (N=12)		CARE communities (N=9)	
With sustained activities* (n=4)	**No sustained activities (n=8)**	**With sustained activities* (n=4)**	**No sustained activities (n=5)**
*Types of sustained activities: -talks and food preparation demonstrations by community health agent (CHA) -monthly growth monitoring by CHA -communal gardening, embroidering and weaving, and maintenance of mothers groups by CHA		*Types of sustained activities: -maintenance of community development committee by community directing board -maintenance of community water board -maintenance of water system by water board -talks and food demonstrations by CHA	

For each group, we identified the predominant characteristic of each factor, identified in half or more of the communities per group. When there were insufficient responses to characterize a factor within a community, the factor was dropped from our analysis. For each factor, we compared the observed characteristics to the corresponding theoretical proposition to determine whether a positive/negative condition for sustainability was present. Then, we compared the results by factor between groups. We considered factors to be associated with program sustainability if the factor differed between sustainability groups.

4.2.2 Influential factors of program sustainability

We adapted Shediac-Rizkallah and Bone's framework for conceptualizing program sustainability in 3 major groups of influential factors: project design and implementation factors, factors within the organizational setting, and factors in the community environment [7]. The first group of factors (initial program) included characteristics of the initial 5-year project period with NGO support, particularly aspects of program implementation and termination. The second group of factors (organization) was related to characteristics of the community-based organizations involved in program implementation, such as their structure, coordination with other groups, and compatibility of the program/topic with the organizational mission. The third group of factors (community) included characteristics of the community, such as the socioeconomic and political considerations and extent of participation. We conceptualized the interrelationships of the groups of factors in an ecological

perspective [9] with layers or systems of factors influencing each other and interacting with the program, which included the initial program and its sustained activities (Figure 4.1).

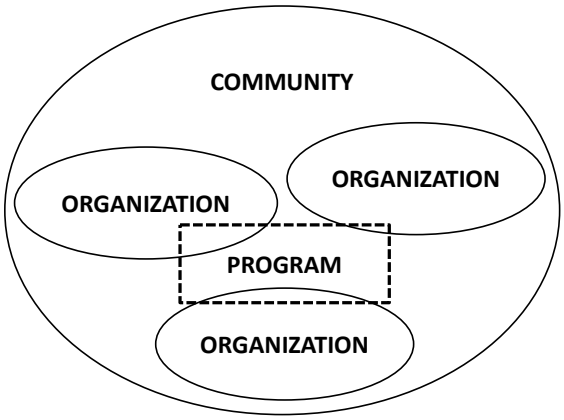

Figure 4.1 Interrelationships of the 3 groups of factors of program sustainability

Beginning with the factors posited by Shediac-Rizkallah and Bone [7], with some additions based on other literature or our own experience, we posed 27 factors with theoretical propositions for the purpose of our study. These knowledge claims or theory-based assertions were used to test the positive or negative correlations of factors and the observed patterns of influence on sustainability in our study. The factors, or independent variables, were the units measured. The factors and theoretical propositions applied in our study are presented in Table 4.1.

Table 4.1 Influential factors and theoretical propositions related to program sustainability

Initial program factors:	**Theoretical propositions:**
1-Negotiation with community	Projects adapted with a "mutually respectful negotiating process" with the local people leads to greater community acceptance and participation and are more likely to be sustained [10-12].
2-Contribution of communal resources	Excessive outside funds inhibit program ownership and sustainability, and beneficiaries' willingness and ability to contribute local resources facilitate demand side of sustainability [10, 13, 14].
3-Project or NGO duration	Number of years in operation is strongly related to the likelihood of program continuation, with short-term investment exerting a detrimental effect on sustainability. [15, 16]. A grant period of 3 years is too short to achieve institutionalization of new health promotion programs [17, 18].
4-Participation of community	Positive relationship between community participation and sustainability [19-21]. Lasting widespread change is most likely to occur if broad range of institutions, community groups, and private citizens are involved in a collective attack [22].
5-Training	Projects with training (professional and paraprofessional) components are more likely to be sustained than those without; those trained can continue to provide benefits, train others and form a constituency in support of the program [10].
6-Perceived impact	The reputation for effectiveness and not objective evidence is important for sustainability [10]. High visibility in the community, through dissemination of information on project activities and early evaluation results, is essential to program continuation [19].
7-Exit actions	Program continuation is facilitated by actions to determine what should be sustained, how or by whom, how much, and by when.
Organizational factors:	**Theoretical propositions:**
Organizational level: 1-Organizational structure 2-Stability/turnover 3-Access to resources 4-Coordination with other groups 5-Integration within organization	"Strong" institutions or organizations which are well integrated, had goal structures that were consistent with the project goals, and had strong leadership and relatively high skill levels positively relate to program sustainability [10].
Individual level: 6-Skills level and training 7-Control/autonomy 8-Support or perceived value of position 9-Motivation for action and incentives	Sound worker-management relationship is essential for organizational sustainability. Failure to establish and foster a sound work environment can undermine worker commitment and retention and jeopardize operations.
Related to program activity/topic: 10-Compatibility to mission/role	Fit or compatibility of the program with organizational mission and activities influence likelihood of integration. Vertical or stand-alone or self-contained programs are less likely to be sustained than programs that are well integrated into the standard operating practices of their host organizations [10, 23].
11-Champion (with org.)	Influential individuals within the implementing organization acting as program advocates or champions generate and garner goodwill for program continuation [17].
Community factor:	**Theoretical propositions:**

1-Magnitude of problem	Perception of the need and urgency of the problem facilitate demand side of sustainability.
2-Causes of problem	Perception of the causes of the problem should align with program's solutions.
3-Concerns and priorities	Competing problems (of poverty, unemployment, crime, housing and homelessness, overcrowded schools, and drug abuse) of unstable communities with little local resources are potential barriers to program adoption and continuation [12, 24].
4-Integration	Caring and enabling people who contribute their gifts, community associations, and community capacity favor continuation [25].
5-Priorities of authorities	Endorsement and support of the program from the top of the host organization is important for continuation [23]. Competing problems (of poverty, unemployment, crime, housing and homelessness, overcrowded schools, and drug abuse) of unstable communities with little local resources are potential barriers to program adoption and continuation [12, 24].
6-Valuing of program activity/topic	Lasting widespread change is most likely to occur if broad range of institutions, community groups, and private citizens are involved in a collective attack [22]. Community participation influences sustainability through the intermediate process of promoting a sense of program ownership [19, 20].
7-Champion (within the community)	Influential individuals within the implementing organization acting as program advocates or champions generate and garner goodwill for program continuation [18].
8-Attitude toward external support	Beneficiaries' willingness to invest and contribute local resources facilitate demand side of sustainability [14].
9-Other organizations	Presence of substitutes or alternatives for the program is a detriment to sustainability.

Interview and focus group participants were asked to characterize the conditions of various factors related to the initial program, organizations (where relevant), and the community. A set of 4-6 transcripts provided data for a single community case. In random order of communities, all 116 transcripts were coded according to the 27 predetermined and emerging factors (Table 4.1). The research team identified a few factors, particularly more specific elements of broadly defined factors, as they emerged during the coding process. Coding and organization of transcripts were conducted using Atlas.ti qualitative data software by 3 standardized coders. Coders made observations about the quality of each interview/interviewee (i.e. duration in position, duration in community, previous work, thoughtfulness and completeness of responses) and examined the factors across various characteristics (i.e. presence/absence, positive/negative conditions, range of response, and use of language or words that exhibit strong/weak element of response or attitude). Clusters of quotations by factor were interpreted and summarized for each community case through discussions among the research team.

4.3 Results

4.3.1 Factors related to the initial programs

A comparison of the 7 factors related to the initial programs of ADRA and CARE is presented in Table 4.2. Patterns of differences between communities with and without sustained activities, which indicate different characteristics of factors, are highlighted in bold and shaded.

Table 4.2 Summary of factors related to the initial programs, by communities with and without sustained activities

Factor	ADRA communities (N=12)		CARE communities (N=9)	
	With sustained activities (n_{i1}=4)	**No sustained activities (n_{i2}=8)**	**With sustained activities (n_{i3}=4)**	**No sustained activities (n_{i4}=5)**
Negotiation with community	None.		Close coordination and planning process.	
Contribution of communal resources	None.		Manual labor for water system and latrine construction.	
Project or NGO duration	2001-2007; previous project in 1-2 communities in 1990s.		2000-2006; previous projects in half of the communities in 1990s.	
Participation of community	CHAs with mothers.		**Participation of all members and organizations.**	**Variable participation of members and organizations.**
Training in community	Regular training of CHAs.		Regular training of CHAs, water board, and authorities.	
Perceived impact	Variable positive and negative effects.		**More positive effects, including reduction of chronic malnutrition.**	**Variable positive and negative effects.**
Exit actions in community	No transfer of activities; materials and equipment given to CHAs or returned to ADRA.		**Meeting to inform project termination and promote continuation; materials and equipment given to CHAs.**	**No transfer of activities; materials and equipment given to CHAs.**

$_{i}$= number of interview/focus group transcripts that substantiate community-level data per group; $_{1,2,3,4}$= groups 1-4 of ADRA and CARE communities with and without sustained activities; $_{i1}$= 20 transcripts; $_{i2}$= 44 transcripts; $_{i3}$= 24 transcripts; $_{i4}$= 34 transcripts

ADRA communities: There were no differences, i.e. observed patterns, in the 7 factors related to the initial program in any of the ADRA communities (Table 4.2). In general, we found mostly negative conditions in this group of factors. There was no recall of any explicit actions to negotiate the project with the communities, and the communities did not invest or contribute any local resources toward the

program, apart from the time and energy of the members of community-based organizations, which are discussed later. There was recall of the initial program lasting the entire 5-year project period in most communities. But there was no recall of the program by name, *Child Nutrition Program*, in half of the communities. In a few communities, ADRA had previously implemented another project related to improving agriculture, so there was an accumulation of experience and support in these communities. In ADRA's program, the community health agents (CHAs) implemented most activities, and mothers with small children and pregnant women were the primary participants. ADRA staff conducted regular training of CHAs in various health and nutrition topics, anthropometry, demonstration sessions, and methodology of other activities. Perceptions of the program impact varied within and across nearly all of the communities, as both positive and negative effects were associated with the program. The program was considered successful for training CHAs and educating mothers about health and nutrition; building awareness in the community about child malnutrition; and installing some "hardware" such as improved cookers and kitchen cupboards. The negative effects included the limited duration of activities and their impact, since the program was considered effective only during the project period under ADRA's support. The program was also criticized in most communities for its "welfare" nature, which reinforced dependence on material incentives and external support for participation and compliance; mothers participated in educational activities while ADRA provided small incentives (e.g. foods, weaving and embroidery tools), but they did not permanently change their habits and practices. There were no specific actions to transfer the program and its activities in the communities. Most respondents were unclear of the reasons for project termination and ADRA's departure from their communities. Materials and equipment used for educational talks, demonstration sessions, and anthropometry were given to CHAs or returned to ADRA upon request. In a few communities, respondents were uncertain of project termination and even expected ADRA to return.

CARE communities: Factors related to CARE's initial program were generally positive conditions for sustainability. According to our propositions, several factors differed between communities with and without sustained activities (i.e. observed patterns associated with sustainability) (Table 4.2).

In nearly all the communities, there was recall of CARE staff holding initial meetings to present the project to community authorities, and CARE continued to plan and coordinate activities with them throughout the project period. There was also no difference among the communities in terms of the contribution of local resources. The communities provided their time and manual labor, particularly for the construction of the potable water systems and latrines. The initial program lasted the entire 5-year project period in most communities. There was recall of the project duration and the program name, *Sustainable Networks for Food Security*. And in half of the communities, CARE had previous projects related to the installation of potable water systems and family planning promotion, thus there was accumulated experience of working in these communities. Similar to ADRA, CARE staff trained CHAs in various health and nutrition topics and activities. The community water boards were trained about water system maintenance; and authorities were trained about leadership, the community development committee (CODECO), and community surveillance system (SIVICO).

Patterns associated with sustainability were observed in 3 factors – participation of community, perceived impact of program, and exit actions. Unlike ADRA's program, CARE's program involved all the members and organizations in the communities with sustained activities. Families, local farmers, mothers' clubs, community authorities, community water boards, and CHAs were all involved in the project activities. In communities without sustained activities, the extent of community participation was variable. In half the communities, authorities and CHAs worked actively to lead and implement project activities, and most of the community was involved. In other communities, CARE staff coordinated with authorities and CHAs, but they did not lead any activities and were mainly responsible for convening participants. Only parts of the community participated in activities, such as families living in the central area of communities. While perceptions of both positive and negative effects of the program were expressed in all communities, there was more recall

of the positive effects, including the impact on reducing chronic malnutrition, in communities with sustained activities. Some common positive effects included trained CHAs, mothers educated about child health and nutrition, and the formation and/or reinforcement of community water boards and potable water system maintenance. Common negative effects were the limited duration of activities and their impact and the lack of success in agricultural activities, especially in increasing crop production and market entry for commercializing local products. In the communities with sustained activities, the program was also considered markedly successful for reducing child malnutrition; improving healthy lifestyles such as hygiene, sanitation, and nutrition; and increasing attendance to health services. At the end of the project period, there was a meeting organized by CARE staff to inform the community of project termination and to discuss how activities should be continued in at least 1 community with sustained activities. In nearly all the communities, program-related materials and equipment were given to CHAs as an action of transfer. In 1 community without sustained activities, there was no indication by CARE about project termination, and community members were still waiting for CARE to return.

4.3.2 Organizational factors related to community directing boards and authorities

A comparison of the 8 factors related to the community directing boards in the ADRA and CARE communities is presented in Table 4.3. Patterns of differences between communities with and without sustained activities are highlighted in bold and shaded.

Table 4.3 Summary of factors related to community directing boards, by communities with and without sustained activities

Factor	ADRA communities (N=12)		CARE communities (N=9)	
	With sustained activities (n_{i1}=4)	**No sustained activities (n_{i2}=8)**	**With sustained activities (n_{i3}=4)**	**No sustained activities (n_{i4}=5)**
Organizational level:				
Organizational structure	Mostly directing boards of 5-7 members.		Mostly directing boards of 5-8 members.	
Stability/turnover	Stability during mandatory term period.		Stability during mandatory term period.	
Access to resources	No regular funds, but access through participatory budget process.		**No regular funds, but access through participatory budget process.**	**No regular funds and little participation in participatory budget process.**
Coordination with other groups	Regular coordination with Municipality, local health staff, and schools.		**Regular coordination with municipality, local health staff, and other community organizations.**	**Little to no coordination with institutions and other organizations.**
Integration within organization	Most members participate and work together.		**Most members participate and work together.**	**Lack of participation and interest among members.**
Individual level:				
Motivation for action and incentives	No material incentives; motivated by mandatory service.		**No material incentives; motivated by community change and development.**	**No material incentives; more recognition of time loss.**
Related to program activity/topic:				
Compatibility of activity/topic to mission/role	Child nutrition not a part of mission or functions.		Food security or child nutrition not a part of mission or functions.	
Champion of activity/topic	None.		**Presidents in 2 communities.**	**None.**

$_{i}$= number of interview/focus group transcripts that substantiate community-level data per group; $_{1,2,3,4}$= groups 1-4 of ADRA and CARE communities with and without sustained activities; $_{i1}$= 20 transcripts; $_{i2}$= 44 transcripts; $_{i3}$= 24 transcripts; $_{i4}$= 34 transcripts

ADRA communities. There were no observed patterns in the 8 organizational factors related to the community directing boards in the ADRA communities (Table 4.3). We found that positive conditions of factors at the organizational level were already demonstrated in the directing boards, although the condition of factors at the individual level and in relation to child nutrition was generally negative. Community directing boards consisted of similar position titles and roles, with 5-7 members, differing only in the presence/absence of a vice-president and the number of "vocals" (or voting

members). Community directing boards were elected members of the community, who were obligated to serve for 2 years or face penalty of losing land rights, under the Rural Communities Law established by the State. In a few communities, the sole highest directing authority was the lieutenant governor, who was appointed by the district governor to represent the interests of the national President. This position was usually held by a community member for an indefinite term period, but often up to 5 years. In 1 community without sustained activities, there was no directing board or authority. There was stability during the term periods until new members are elected or appointed, since the directing board members and the lieutenant governors are mandatory appointments. Only in 1 community, the previous community president was ousted from his position after 6 months by the general assembly for not completing his duties. Most community directing boards did not have regular funds, but they had access to resources through the annual participatory budget process of the Municipality. Through this process, community authorities proposed plans for various community projects. In a few communities, authorities received petty funds from the Municipality for administrative tasks and mobility. Community directing boards maintained regular coordination with the Municipality to request and receive funds or services for the communities, such as road and other infrastructural construction. There was also regular coordination with the local health establishments and schools to inform and convene families around specific issues and events. There was occasional coordination with institutions (e.g. Construyendo Peru for infrastructural works) and social programs (e.g. JUNTOS for conditional cash transfer and Common Kitchens for providing subsidized foods to communities). Where directing boards existed, most of the members participated in planning meetings and worked together. In a few communities, 1-2 members were pointed out as being less active and participatory in board activities.

At the individual level, there was no material incentive for community directing authorities. The primary motivation for serving in the position was the obligation as a community member. In 1 community, authorities were excused from communal activities for up to 2 years upon completing their service, and this time to dedicate to their own work was an incentive. The missions of

community directing boards were identified as contributing to community development, addressing community needs, mediating conflicts, and contributing to public order. Some authorities expressed personal interest in child nutrition and its importance for community development, but most did not see it as part of their role or function. No one was identified as a champion or particularly concerned about child nutrition among the community directing authorities.

CARE communities. There were several patterns of factors related to the community directing boards in the CARE communities, demonstrating potential influence of changes in these organizations to program sustainability (Table 4.3). The 5 factors with observed patterns were access to resources, coordination with other groups, integration within organization, incentives or motivations for action, and champion of the activity/topic.

At the organizational level, we found that conditions in communities with sustained activities were similar to the conditions in all the ADRA communities. The organizational structures and stability of the community directing boards were similar to those in the ADRA communities. Community directing boards in CARE communities with sustained activities did not have regular budgets, but they had access to some resources through the municipality. However, in the communities without sustained activities, the directing boards showed little initiative or interest in the participatory budget process; this lack of interest was often connected to internal discord among board members. In 1 community, political differences and difficulties in communication with the municipality were stated as a specific reason for not being involved in the participatory budget process. In a few communities, the directing boards maintained a small regular budget by collecting land rental fees, selling trees and agricultural products grown on communal land, and collecting penalty fees for missing mandatory communal activities. In the communities with sustained activities, the directing boards and authorities regularly coordinated with the municipality and local health establishments for administrative tasks and specific activities. They also coordinated with various community organizations such as the water board, irrigation committee, mothers' club, and parents association, for

support in activities and discussions about problems and solutions in their community. In 1community, the directing board was coordinating with a private gas company that was putting industrial gas pipes in the area, in order to receive compensation through community projects. In the communities without sustained activities, there was a lack of coordination between community authorities and other organizations and institutions; there were no activities or projects being planned or managed with other entities. Most directing board members participated in board activities and worked together in the communities with sustained activities. However, in communities without sustained activities, there was mostly discord within the directing boards. There was a lack of participation and integration among the members, as they preferred to dedicate their time to income-generating work (agricultural activities and construction work). In 1 community, the directing board members rarely met together; 1 member was outright antagonistic and always opposed the president's suggestions and ideas, and even the president wanted to abandon his position and focus on his crops and farmland.

Community authorities did not receive material incentives in any of the communities. In the communities with sustained activities, authorities were motivated to serve because they wanted to see community development. In the communities without sustained activities, most authorities focused on the disadvantages of their position – the loss of time to meetings and activities resulting in the loss of work and income. The missions of community directing boards were similar to those identified in the ADRA communities, and most authorities did not consider food security or child nutrition as related to their role or function. In 2 communities with sustained activities, the community presidents were identified as champions for food security or child nutrition among the authorities. One community president actively promoted the work of the water board and importance of clean water consumption in the community, as well as frequently talked about a vision for community development through improved agriculture and food access. The second community president was recognized simply for often expressing concern for child malnutrition in the community. Both community presidents were described as active leaders and initiative-takers within their directing boards. None of the authorities

in the communities without sustained activities were identified as champions or leaders in the topic of food security or child nutrition.

4.3.3 Organizational factors related to community water boards

A summary of the 10 factors related to the community water boards is presented in Table 4.4. Patterns of differences between communities with and without sustained activities are highlighted in bold and shaded.

Table 4.4 Summary of factors related to community water boards, by communities with and without sustained activities

Factor	**CARE communities (N=9)**	
	With sustained activities (n_{i3}=4)	**No sustained activities (n_{i4}=5)**
Organizational level:		
Organizational structure	Water boards of 5-6 members that serve for 2 years, accountable to general assembly of users.	
Stability/turnover	Stability during term period.	
Access to resources	Monthly fees of S/.0.5-2 ($0.15-0.75) paid by users, to pay for maintenance supplies and materials.	
Coordination with other groups	Little coordination with other organizations and institutions.	
Integration within organization	**Most boards meet regularly and fulfill functions.**	**Predominant lack of participation among members.**
Individual level:		
Skills level and training	**Trained board members.**	**Most members function based on observations of previous boards.**
Support or perceived value of position	**Users pay their fees and participate in maintenance activities without much difficulty.**	**Most users pay and participate without difficulty; fines and sanctions used to assure payment and little participation from some users.**
Motivation for action and incentives	No material incentives; motivated as required community service.	
Related to program activity/topic:		
Compatibility of activity/topic to mission/role	Family health and wellbeing part of mission.	
Champion of activity/topic within organization	**Presidents in 2 communities and the fiscal in 1 community.**	**None.**

$_i$= number of interview/focus group transcripts that substantiate community-level data per group; $_{3,4}$= groups 3-4 of CARE communities with and without sustained activities; $_{i3}$= 24 transcripts; $_{i4}$= 34 transcripts

CARE communities. Since community water boards were not part of ADRA's program, the 10 organizational factors related to water boards are presented for only CARE communities. Similar to the community directing boards, several observed patterns of factors related to the water boards were identified, as well as generally positive conditions for sustainability. There were 4 factors with observed patterns, indicating their potential association with sustainability – integration within organization, skills level and training, community support or perceived value of position, and champion of activity/topic (Table 4.3).

There was little difference in the organizational structures, stability, access to resources, and external coordination of the water boards in communities with and without sustained activities. Water boards consisted of similar positions of 5-6 members, with the absence of a vice-president and different only in the number of "vocals" (or voting members). The general assembly of water users (or representatives of households with access to the water system) elected the board members, who served for 2 years. Although there was no state law or regulation with penalties, most board members served for their entire term period. Maintenance of the water boards and the potable water system were considered as regular and permanent activities within the communities. However, in 1 community, the consistency and quality of work by the water boards declined with each consecutive term, as new members were more lax and less knowledgeable about their functions and the activities required for system maintenance and repair. All of the water boards also had the same pay-for-use system for accessing funds. There was little variation in the amount of monthly fees, and nearly all the funds were used to purchase supplies and materials for regular maintenance and minor repairs of the water systems. The collected funds were usually sufficient for small recurrent expenses, but they were insufficient for major repairs and larger expenses. Two to three users also rotated to help with the manual cleaning and maintenance work. The water boards coordinated little with other organizations and institutions; they mostly discussed and coordinated activities among the members and water users. In half of the communities, the water boards received support from the municipality for materials and large equipment necessary for repair and renovation of the water systems, as well as occasional

training about water treatment and maintenance. The only factor with an observed pattern was in relation to integration. In communities with sustained activities, water board members met regularly to discuss issues and work together to collect funds, purchase supplies, monitor the water system, and organize monthly maintenance work. In communities without sustained activities, only 2 water boards worked actively to maintain the water system. Most water boards did not meet nor maintained the water system regularly; the presidents worked alone to conduct minimal tasks in these communities.

At the individual level, we found 2 patterns of factors related to the water board members' work. Most water board members in the communities with sustained activities were prepared to conduct their work because they had received training about water system maintenance and the importance of clean water use at least once during their term from the municipality. Presidents in 2 of these communities also had experience from serving as previous water board members. In the communities without sustained activities, water board members executed their functions based on what they knew from participating as users, observed from activities of previous water boards, and read from previous meeting notes. Overall, none of the water boards felt much support from their communities, but rather, they received more complaints from the users. The board members, even the most active individuals, expressed that they did not want to serve in their positions. However, in the communities with sustained activities, most users paid their fees regularly and participated when convened to help maintain the water system. In some communities without sustained activities, the water boards expressed difficulties in collecting monthly users' fees and obtaining participation for maintenance activities. In terms of their work motivation, none of the water board members received any material incentive, but they all continued to serve because their positions were considered required community service. Some members were motivated by the importance of their work in assuring community health and livelihood.

The mission of all the community water boards was to assure access to sufficient and quality potable water to families for their health and wellbeing. The impact of their work on child health and nutrition was recognized in few communities. Among the communities with sustained activities, 2

water board presidents and 1 fiscal (responsible for finances) were identified as leaders and the most active in assuring that the water board fulfilled all its functions. These individuals were also recognized as being most concerned about preventing illness among children and assuring family health, which they expressed during meetings and other encounters with users. In the communities without sustained activities, no one was identified as being a champion or particularly concerned about food security or child nutrition.

4.3.4 Organizational factors related to community health agents

Among the community-based organizations, the CHAs presented the most observed patterns in factors between the communities with and without sustained activities of both ADRA and CARE's programs. There were 5 organizational factors related to CHAs in ADRA communities and 7 factors in CARE communities that were potentially associated with program sustainability. A comparison of the 9 factors related to the community health agents in the ADRA and CARE communities is presented in Table 4.5. Patterns of differences between communities with and without sustained activities are highlighted in bold and shaded.

Table 4.5 Summary of factors related to community health agents, by communities with and without sustained activities

Factor	ADRA communities (N=12)		CARE communities (N=9)	
	With sustained activities (n_{i1}=4)	**No sustained activities (n_{i2}=8)**	**With sustained activities (n_{i3}=4)**	**No sustained activities (n_{i4}=5)**
Organizational level:				
Organizational structure	0-3 CHAs per community.		1-2 CHAs per community.	
Stability/turnover	**Longstanding CHAs with 13-28 years in position.**	**1-7 years in position; some in inactive status.**	**4-19 years in position.**	**1-18 years in position; some in inactive status.**
Access to resources	None.		None.	
Coordination with other groups	**Coordination with local health staff and mothers groups.**	**Some with no coordination with health staff.**	**Coordination with local health staff.**	**Some with no coordination with health staff.**
Individual level:				
Skills level and training	**Long experience and regular training from health staff and/or PREDECI.**	**Occasional training from health staff and/or JUNTOS.**	**Regular training from health staff and/or PREDECI.**	**Few training from health staff and/or PREDECI.**
Control/autonomy	**Planning with health staff, and activities planned and executed on their own.**	**Little execution of activities and as instructed by health staff and/or JUNTOS.**	**Planning with health staff and/or PREDECI, and activities planned and executed on their own.**	**Little execution of activities and as instructed by health staff and PREDECI.**
Support or perceived value of position	**Trust and participation of mothers.**	**Little support from community.**	**Trust and participation of mothers and community.**	**Little to no community support and participation.**
Motivation for action and incentives	No material incentives; motivated by knowledge and desire to combat child malnutrition.		**No material incentives; motivated by knowledge and desire to combat child malnutrition.**	**No material incentives; more lack of motivation.**
Related to program activity/topic:				
Compatibility of activity/topic to mission/role	Education and follow-up to reduce child malnutrition are central role and activities.		**Education and follow-up to reduce child malnutrition are central role and activities.**	**Maternal and child health and nutrition considered mission; mostly reporting and follow-up.**

$_{i}$= number of interview/focus group transcripts that substantiate community-level data per group; $_{1,2,3,4}$= groups 1-4 of ADRA and CARE communities with and without sustained activities; $_{i1}$= 20 transcripts; $_{i2}$= 44 transcripts; $_{i3}$= 24 transcripts; $_{i4}$= 34 transcripts

ADRA communities. Among the communities with and without sustained activities, there was little difference in the organizational structures of CHAs, particularly in their number per community, informal structure of work and accountability, and process of appointment. There was usually 1 CHA per community, but the number infrequently varied up to 3 in a community. In 2 communities, there were no CHAs. While CHAs often had some connection with the local health staff, they worked alone in their communities without official recognition or regular accountability. CHAs did not have access to any resources, particularly financial resources. In 1 community, the CHA used her own money to purchase small supplies and made materials for educational sessions.

Most CHAs were appointed by their communities, particularly the authorities, sometimes with suggestions and support from the local health staff. CHAs did not have a specified duration of service; they held their positions until they quit or the community appointed another person. However, in 1 community, there was a regular turnover of CHAs each year, partly due to the unwillingness of CHAs to serve voluntarily for more than 1 year. In the communities with sustained activities, CHAs had been in their positions for a very long period, i.e. 13 to 28 years. Whereas in the communities without sustained activities, CHAs had a shorter duration of 1-7 years, and a few CHAs were not active and did not conduct any activities. In communities with sustained activities, most CHAs coordinated with the local health staff to plan their activities and receive training. CHAs also coordinated with mothers' groups to conduct educational talks. In the communities without sustained activities, some CHAs worked with the local health staff, but others had explicitly negative relations with the health staff and did not coordinate with them. In these cases, the head physicians of the local health center or health post did not value CHAs' work and did not maintain relations with them. In a few communities, CHAs also coordinated activities with the national conditional cash transfer program (JUNTOS) and received training through that program.

At the individual level, none of the CHAs were professionally trained in health and nutrition; all of the CHAs were literate, but few had completed primary school. In the communities with sustained activities, CHAs had over 10 years of experience and were trained by the local health staff,

different NGOs, and other institutions. They continued to receive regular training from the local health staff and/or the child nutrition program of the regional government (PREDECI) in various health and nutrition topics. In the communities without sustained activities, CHAs had less years of experience, and CHAs in only 4 communities received occasional training from the local health staff and/or from JUNTOS. In 1 community, CHAs had little connection with the health post and conducted educational talks based on their knowledge from previous training from ADRA and other institutions. In communities with sustained activities, CHAs demonstrated more autonomy in their work. CHAs briefly planned their activities with the local health staff in terms of type and frequency, but they mostly planned and executed various educational activities on their own, applying their accumulated knowledge and experiences. In communities without sustained activities, CHAs executed activities according to the schedule and instructions provided by health staff and/or the JUNTOS program coordinators. In 2 communities, CHAs executed only minimal activities, such as conducting follow-up to pregnant women and sick patients and making referrals to the local health center or health post.

While CHAs were personally motivated for different reasons, they perceived the value of their positions and work mainly based on the views and responses of their communities [26]. In communities with sustained activities, most CHAs had the trust and participation of mothers, although they did not have the support of the entire community. In 1 community, the community members gave no importance to the CHA and did not consider the position as necessary. No one wanted to serve as a CHA because the position was voluntary without pay, and yet they accused any CHA who held the position of receiving secret benefits from the health staff and other institutions. In the communities without sustained activities, few CHAs had the trust and participation of the mothers and/or their community, and there was mostly no interest or recognition of the CHAs and their work. In terms of work motivation, there was no material incentive, but most CHAs were motivated by the desire to learn. CHAs valued training and learning information about how to improve their lives and

the lives of their communities. CHAs were also motivated by their desire to combat child malnutrition or improve the general health and wellbeing of children and families in their communities.

Most CHAs identified their main goal or mission as reducing child malnutrition and improving the health and nutrition of their communities. They identified their roles as education and follow-up of mothers and other vulnerable groups in the community. The missions and roles identified by CHAs were strongly compatible with those of the initial program. Since most of the CHAs worked alone, responses related to the champion within the organization was irrelevant. Some CHAs identified themselves as being concerned or interested in the related activities, but often there was no response. This factor was addressed later, with regard to the champion within the broader community.

CARE communities. The organizational structure of CHAs in the CARE communities was similar to those in the ADRA communities. One or two CHAs existed per community. CHAs were mostly appointed by their communities, with the suggestions and support from the local health staff. There was no specified term limit in any of the communities. CHAs did not have access to any resources, particularly financial resources. In 1 community, the CHA mentioned receiving office supplies (pens, paper, and poster board) from the local health post and the Municipality.

There was little difference in the range of appointment duration between communities with and without sustained activities; some CHAs were relatively new to their positions, while others had served for many years. However, in 3 communities without sustained activities, CHAs were not active. They were identified as CHAs, but did not conduct any activities in their communities. In communities with sustained activities, most CHAs coordinated with the local health staff to plan their activities and receive training, while few CHAs coordinated with the local health staff in communities without sustained activities. The main reasons for not coordinating with the local health center or health post were the perception among CHAs that health staff (mainly the head physicians) did not value them and the health staff did not invite or convene them to work together [26]. Few CHAs also

coordinated activities with JUNTOS and PREDECI and received trainings on health and nutrition topics from these programs.

CHAs in the CARE communities had similar educational background and skills level to those in the ADRA communities. In the communities with sustained activities, most CHAs had many years of experience and continued to receive regular training from local health staff and/or PREDECI. In communities without sustained activities, the active CHAs had only 1-2 years of experience, and few continued to receive training from the health staff and/or PREDECI. CHAs in communities with sustained activities demonstrated more work autonomy. Most CHAs planned their activities with the local health staff and/or the PREDECI program coordinators, and then they also planned and conducted various educational activities on their own. In the communities without sustained activities, few CHAs conducted any activities. One CHA executed activities according to the schedule and instructions strictly provided by health staff and the PREDECI coordinator, while the other CHA conducted only minimal activities of follow-up and making referrals.

In communities with sustained activities, most CHAs had the trust and participation of the mothers and/or their community; CHAs were recognized as community leaders. In communities without sustained activities, most CHAs had little to no support and participation from their community, even among the mothers. Authorities gave little importance in their work and did not support them within the community. Community members accused the CHAs of secretly receiving benefits from the local health staff and other institutions, and yet no one wanted to hold the position because it was voluntary without pay. Some community members could not even identify their CHAs and considered the position as unnecessary. CHAs did not receive any material incentives. Similar to those in the ADRA communities, most CHAs in the CARE communities with sustained activities were motivated by the opportunity to gain new knowledge about health and nutrition through training and the desire to improve the child nutrition situation in their communities. In communities without sustained activities, CHAs were much less motivated. They felt alone without the support of their communities, tired of trying to overcome their difficult situations, and discouraged because there was

no incentive or recognition for their work. CHAs expressed other priorities for their time, which made them dedicate less time in their work as CHAs.

In the communities with sustained activities, CHAs identified similar missions and roles as those in the ADRA communities. In the communities without sustained activities, the mission of most CHAs was related to improving the health and nutrition of children and pregnant women, but they identified their roles as only reporting cases of emergency and illness to the local health staff and following up, rather than in educational activities.

4.3.5 Factors related to the community

A comparison of the 9 factors related to the community in the ADRA and CARE communities is presented in Table 4.6. Patterns of differences between communities with and without sustained activities are highlighted in bold and shaded.

Table 4.6 Summary of factors related to the community, by communities with and without sustained activities

Factor	ADRA communities (N=12)		CARE communities (N=9)	
	With sustained activities (n_{i1}=4)	**No sustained activities (n_{i2}=8)**	**With sustained activities (n_{i3}=4)**	**No sustained activities (n_{i4}=5)**
Magnitude of problem	**Large problem (≥50% children) but improved from previous years.**	**Variable, even within communities.**	**Medium problem and improved from previous years.**	**Variable, even within communities.**
Causes of problem	Direct causes (poor food, health and care) to basic causes (poverty, illiteracy, harsh climate, social problems).		Direct causes (poor food, health and care) to basic causes (poverty, illiteracy, harsh climate, social problems).	
Concerns and priorities	Poverty and lack of work, and low agricultural production.		Poverty and lack of work, and low agricultural production.	
Integration	Disorganized, little collective action and individualistic.		**Organized, collaborative, and hardworking.**	**Disorganized, dispersed, and individualistic.**
Priorities of authorities	Infrastructural work (road and building construction, urban services).		Infrastructural work (building and road construction, urban services).	
Valuing of activity/topic	Some mothers interested for better education and future, but little concern by community.		**Concerned families; attentive water users.**	**Some mothers interested in better education and future, but little concern by water users and community.**
Champion of activity/topic	**CHAs.**	**CHA in only 2 communities.**	**CHAs; water board in 1 community.**	**CHAs in 2 communities.**
Attitude toward external support	Conditioned to participate and practice in health-related activities only with material incentives.		Conditioned to participate and practice in health-related activities only with material incentives.	
Other organizations	JUNTOS and/or PREDECI.		JUNTOS and/or PREDECI.	

$_{i}$= number of interview/focus group transcripts that substantiate community-level data per group; $_{1,2,3,4}$= groups 1-4 of ADRA and CARE communities with and without sustained activities; $_{i1}$= 20 transcripts; $_{i2}$= 44 transcripts; $_{i3}$= 24 transcripts; $_{i4}$= 34 transcripts

ADRA communities. There were patterns of difference in 2 factors related to the community between communities with and without sustained activities, i.e. the perceptions of the magnitude of the problem and the champion in child nutrition. However, the remaining factors generally presented negative conditions for sustainability.

In communities with sustained activities, child malnutrition was mostly perceived as a large problem, affecting at least half of all small children in these communities. However, the problem was

considered to be less than in previous years due to various interventions to improve child nutrition, including ADRA's program. In communities without sustained activities, perceptions about the magnitude of the child malnutrition problem varied across communities and even within the communities. CHAs were identified as the champions of child nutrition within communities with sustained activities. They were recognized for promoting this topic and conducting educational activities to improve child health and nutrition. Among communities without sustained activities, CHAs in only 2 communities were identified as champions of child nutrition.

There were no differences in the remaining 7 community-related factors. The identified causes of child malnutrition were various, ranging from the direct causes such as poor food, health, and care, to basic causes such as poverty, illiteracy and poor education, harsh climates leading to poor agricultural conditions, and social problems such as family violence and alcoholism. The main concerns of families were poverty and little economic resources, the lack of work, and low agricultural production. Health and nutrition or children in general were not considered as high priorities among families. Most communities were characterized as being disorganized, often due to the lack of active leadership, and taking little collective actions. Community members were mostly described as individualistic, focused on their individual needs and benefits, with little regard for their community. Some communities were dispersed, i.e. homes were scattered in the peripheral areas of communities, but there was little migration. Priorities of community authorities included mostly infrastructural work such as road and building construction and the access and availability of water and electricity services. In relation to the value of child nutrition in the communities, this topic was considered mainly as a concern for mothers. Mothers were concerned about child nutrition because they desired for their children to achieve more education and better futures (i.e. regular employment), but there was little concern by the general community. In the attitude or posture toward external support, most communities were described as being conditioned to participate and adopt promoted practices only with material incentives. In addition to the ongoing social programs such as the Glass of Milk Program, child daycare, and distribution of family food baskets, there were some similar intervention

programs that also started soon after ADRA's project termination. The national cash conditional transfer program (JUNTOS) and/or the child nutrition program of the regional government (PREDECI) started in most communities, and both of these programs were considered as similar and possible substitutes to ADRA's program.

CARE communities. There were 4 observed patterns of community-related factors in the CARE communities, but most factors still presented negative conditions for sustainability. In communities with sustained activities, child malnutrition was considered a problem of medium magnitude, much improved from previous years due to various interventions to improve child nutrition. However, there was no consistent perception about the magnitude of the problem in communities without sustained activities. Most of the communities with sustained activities were characterized as being organized, collaborative, and hardworking, while those without sustained activities were disorganized, dispersed geographically, and individualistic. In communities with sustained activities, food security and child nutrition were considered as concerns for most families, and the water users were attentive and involved in the maintenance of the potable water system to assure good health. In communities without sustained activities, some mothers were concerned about child nutrition for better education and futures of their children, but there was little concern by the water users and the general community. CHAs were identified as the champions of child nutrition within most communities with sustained activities, and the water board was identified as the champion for food security and child health and nutrition in 1 community. In communities without sustained activities, CHAs in only 2communities were identified as champions of the topic/activities.

Perceptions about the causes of child malnutrition were similar to those identified in the ADRA communities, and they ranged from the direct causes such as poor food, health, and care, to basic causes such as poverty, illiteracy and poor education, harsh climates leading to poor agricultural conditions, and social problems such as family violence and alcoholism. The main concerns of families were poverty and little economic resources, the lack of work, and low agricultural production.

Regardless of communities with or without sustained activities, authorities prioritized infrastructural work such as road and building construction and the access and availability of water and electricity services. There was no difference between communities with and without sustained activities in their attitude toward external support and the presence of other organizations or programs, and they presented similar characteristics in these factors as those in the ADRA communities. Most communities were conditioned to participate and adopt promoted practices only with material incentives. In addition to the ongoing social programs provided by the national government, JUNTOS and PREDECI were being executed in most communities. Both of these programs were aimed at addressing child malnutrition and consisted of similar activities as CARE's program.

4.4 Discussion

Results indicate that observed patterns of influential factors in program sustainability are congruent with the different program models (thus, focus for program design and implementation) and our previous findings on sustained activities (Chapter 3).

***Influences of the initial programs*.** Inasmuch as ADRA's program had a simpler program model, there was likely less variation in the design and implementation of the program in the communities. Whereas CARE's more complex and integrated program model was susceptible to more variation in program design and implementation. In result, we found no differences in the factors related to ADRA's initial program between the communities with and without sustained activities. Thus, the factors related to the initial program were likely not associated with the sustainability of ADRA's program activities. Also, the factors reflected overall negative conditions for sustainability, as posited by our theoretical propositions. Within CARE's communities, the patterns of 3 factors were potentially associated with sustainability – broader community participation in the program, positive perceptions of program impact, and intentional actions to inform about project termination and promote continuation. Factors related to the initial program presented positive conditions for

sustainability in most CARE communities, which seemed to reflect CARE's overall efforts to execute influential actions across all communities.

***Influences of the community-based organizations*.** Patterns of organizational factors were present only in the organizations primarily involved in program implementation. In ADRA's program, we observed patterns of factors related to the CHAs but not in the community directing boards. This is reasonable, since ADRA staff worked most closely with CHAs in order to intervene with mothers, but they did not have regular activities with the community directing boards. There were some positive conditions for sustainability at the organizational level of community directing boards, but negative conditions at the individual level and in specific relation to child nutrition. In relation to CHAs, we observed 5 patterns of factors potentially associated with sustainability across both the organizational and individual levels. ADRA communities with sustained activities tended to have CHAs with longer duration in position, more coordination with health staff and mothers groups, more experience and regular training, more work autonomy, and more support from mothers and positive perceptions about their work.

In CARE's program, we observed patterns of organizational factors in all 3 types of community-based organizations. Five patterns of organizational factors were observed in the community directing boards: access to resources, more coordination with other organizations and institutions, more integration among members, more positive work motivation, and champions of child nutrition. Additionally, in the community water boards, the patterns identified 4 influential factors: more integration of members, more trained members, more support of the community or users, and the presence of champions of child nutrition. In the CHAs, we found 7 patterns of influential factors: longer duration in position among active CHAs, more coordination with health staff, more regular training, more work autonomy, more support from mothers and the community, more work motivation, and recognition of program activities as central roles. Thus, there were many patterns of organizational factors potentially associated with sustainability of CARE's program. Furthermore, we

found mostly positive conditions for sustainability in all the community-based organizations, but these positive conditions may reflect CARE's programmatic work across all communities and did not differentiate with sustainability.

Influences of the community context. ADRA communities with sustained activities tended to have the perception of child malnutrition as a large problem and more champions of child nutrition. However, there were many negative conditions of community-related factors. Thus, despite the 2 observed patterns of influential factors, there were many negative conditions that may be overwhelming the potential for sustainability in the communities. In the CARE communities, there were 4 patterns of influential factors and few negative conditions of community-related factors. We observed patterns of more consistent perspectives in the magnitude of the child malnutrition problem, more community integration, more concern for child nutrition, and more champions of child nutrition. These patterns of factors related to the community context pointed to associations with sustainability in CARE's program.

Our study suggests that the positive conditions of factors and patterns of factors associated with program sustainability may be influenced by program design and implementation, given the congruency of our findings to the initial program models. In ADRA's program with its main focus on addressing child malnutrition through concentrated efforts with CHAs and mothers, the sustained activities were those maintained by CHAs. In result, we found patterns of factors associated with sustainability in the CHAs and few in the community context. However, there were no patterns and overall negative conditions related to the initial program and the community directing boards. With CARE's program of integrated intervention activities through various community groups and actors, there were more sustained activities implemented by different organizations. In result, we found patterns of factors associated with sustainability in across all contextual levels. Also, there were positive conditions of factors related to the initial program, community directing boards, water boards,

and CHAs. Only in the community context, we found that the conditions of factors were generally negative, despite some patterns associated with sustainability. In short, the forms and types of influential factors on sustainability reflected the forms and types of sustained activities. Thus, depending on one's goal for sustainability, the appropriate program design and implementation may potentially influence to achieve sustainability.

The influential factors on program sustainability are not discrete elements, and their strength of effects should not be considered in isolation from one another. For this reason, we conceptualized the layers of contextual factors with interrelationships that likely interact over time to influence program sustainability (Figure 4.1). For instance, we found clustering of certain influential factors, such as the integration of organizational members with community integration and community support/positive perceived work value with the valuing of activity/topic within community. These interrelationships are logically sound and supported in our findings. Thus, it is likely that some factors work synergistically to reinforce their influence on sustainability.

Our study findings also mostly confirm the results from the review of the 19 empirical studies [1], as well as add many other influential factors associated with program sustainability. Our broader findings may be a result of our approach to test a comprehensive framework with numerous factors and theoretical propositions, rather than the common inductive approach of the other empirical studies.

Our study nevertheless faces limitations in design and analysis. As a proof of concept to assess the relevance of the theoretical propositions related to program sustainability, our study had a retrospective design with cross-sectional data collection of individual's recall and current observations of contextual factors. This study was not designed to test causality and makes no claim of predictive or causal relationships to program sustainability. Also, the results of observed patterns of influential factors and conditions of factors make no judgment about program impact or effectiveness. Our method of analysis involved the most common responses across community summary data and focused on the patterns of overall difference between groups of communities with and without sustained activities. Factors that do not present differences between groups are not considered as

patterns. We sought general observations of predominant characteristics of factors and main patterns of differences, at the cost of large data reduction and high threshold of differences in responses between groups. We recognize the large variability involved in the final estimate of factors at the level of groups of communities. Also, our analysis does not recognize any unique characteristics or cases, but rather, focus only on common characteristics of factors across communities within groups.

In conclusion, we provide empirical evidence of the influential factors of program sustainability in 2 different intervention programs. We suggest that more influential factors with positive conditions at the different contextual levels – the initial program, implementing organizations, and the community – should be stacked against those with negative conditions. Thus, a specific sustainability goal should be determined, as part of program design and implementation, to intentionally influence the contextual factors and achieve program sustainability. Further research to test the cause-and-effect relationships of the influential factors in program sustainability will provide more evidence and better guidance for program design and implementation.

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CHAPTER 5:

CONCLUSION

5.1 Conclusion to Chapter 2: Comparative Use of the Program Impact Pathway

In Chapter 2, we elucidated the program impact pathways (PIP) of the three child nutrition programs and analyzed them with their explicit program logic models (from program documents) to highlight the methodology and utility of PIPs. With the desire to move beyond the static program logic models, we focused on the program theory or the causal linkages between programs activities and their desired effects to understand how and why programs work. We represented this program theory through PIPs, which are the visualization of causal pathways or mechanisms from intervention input or program service delivery to desired impact. In short, Astbury and Leeuw (2010) defined program logic as being used "to identify and describe the way in which a program fits together," while program theory is used "to build an explanatory account of how the program works, with whom, and under what circumstances. Thus, program theory might be seen as an elaborated program logic model, where the emphasis is on causal explanation" [1], p.365]. Thus, program logic and program theory are different but complementary conceptual components.

Both program logic and program theory are expressed and displayed in various ways, with a sequence of boxes and arrows, a table, and/or a narrative description. Various templates or exemplary formats also exist to display program logic, which is more common and widely applied. Two such examples for modeling the logical relationship between program resources, activities, and outcomes are logical frameworks or logframes and results frameworks [2-6]. These two types of program logic models are described in detail in Chapter 2, but their comparison to PIPs are summarized in Table 5.1.

Table 5.1 Comparison of examples of program logic models and PIPs

Models or templates	Distinct characteristics	Main uses
Examples of program logic models:		
Logical frameworks	Matrix table that identifies strategic elements (inputs, outputs, outcomes, and impact), means of verification (data sources), and assumptions and risks	Program overview Donor reporting Program planning and design Team building and stakeholder engagement Formative evaluation Program monitoring Summative evaluation
Results frameworks	Emphasis on stepwise results to achieve the goal (objectives, outcomes, and impact/goal) and prompts the specification of indicators to track progress toward achieving these results	
Program impact pathways (PIPs)	Emphasis on causal explanation and facilitates causal inference and extrapolation	Program planning and design Team building and stakeholder engagement Formative evaluation Program monitoring Process evaluation Summative evaluation Decision-making for scaling up Research of program theory or social science theory

Various methods for constructing or mapping program theory or PIPs exist, including systematic review and analysis of program documents, study of similar programs and social science theories, statistical modeling and path analysis, concept mapping exercises, interviews with program staff, observations of program (activities) in action, and combinations thereof [7-11]. In our study, we retrospectively constructed the PIPs of key program activities by reviewing program documents and conducting interviews with program staff at different operational levels, in order to compare and contrast the perceived program theories to program logic models. Our study also provided the detailed understanding of the programs for the subsequent sustainability assessment (Chapters 3 and 4). The PIPs revealed congruencies and gaps in the perceptions of causal mechanisms among program staff at different operational levels. National and regional program staff had good understanding of the overarching principles and processes of their respective programs, with strong coherence to the program documents. Program staff at the local level had the more practical dimensions of the impact pathways, with understanding of the specific factors that influence the activity processes. In either

operational level, the PIPs provided more information of causal linkages between program activities and final outcomes than the explicit logic models, and combined together, a more comprehensive PIP was constructed.

Our research confirmed that construction of impact pathways is a useful approach for mapping the causal connections required for impact and provide more information for causal explanation compared to current program logic models. Given the partial conceptual and operational knowledge among program staff, communication across operational levels may lead to more coherent articulation and understanding of the programs' causal mechanisms, although this connection to effectiveness is not yet proven. The PIPs also provided a closer look into the three child nutrition programs, in order to proceed with the assessment of program sustainability. Compared to simple program logic models, PIPs were advantageous in discovering certain findings, such as adaptations in any conceptual as well as operational logic of continued activities.

5.2 Conclusion to Chapter 3: Reflections on the Measures of Program Sustainability

In Chapter 3, we adapted Pluye and colleagues' (2004) framework for program sustainability through routinization with or without standardization of activities, since we aimed to assess the continuation of program activities or program service delivery [12]. Studies of sustainability as defined as program continuation often approach the subject from organizational theory, particularly applying constructs related to institutionalization or the resilience of social structures [13, 14]. We also found this approach appropriate in our study, where program activities related to child health and nutrition were sustained by local organizations. Moreover, Pluye and colleagues' framework provided the most systematic and comprehensive conceptualization centered on the process of specific activities or practices becoming a norm or routine within organizations, rather than focusing on the adoption of whole programs or the general strengthening of organizations responsible for implementation.

We found that the four characteristics of routines (resources, adaptation, collective values, and rules) and their constructs and metrics were relevant in the context of our study. Most program

activities presented the capacity to fulfill these characteristics. However, the first and most important step was to identify the organizational structure and boundaries related to accountability, supervision, and managerial and operational decision-making. Understanding the structure of each organization, within which activities are implemented, was critical to measuring the routine characteristics, which presented different types, range, and intensity according to different organizational contexts. Pluye and colleagues provided detailed construct definition and a simple method for determining the degree of sustainability based on aggregated binary responses in the context of homogenous types of implementing organizations [12]. However, more variation was present within responses related to routine characteristics across different types of organizations. In complex intervention programs that involve various implementing organizations, assessment of the degree of sustainability required consideration of the characteristics of routines within the context of each implementing organization.

While the characteristics of routines were relevant and applicable measures within our study, Pluye and colleagues' single measure of institutional standard (i.e. existence or lack of public policy) could not be directly applied and required specification of broader contexts. Inasmuch as routines are nested within organizations and thus require definition of organizational structure, institutional standards or policies are developed within a broader policy-setting environment such as the state government or other superior entities and require definition of the policy-making process and environment. Contrary to Pluye and colleagues' categorization of strong sustainability as defined by the presence of public policy in addition to the characteristics of routines, our study suggests that the type and level of policy should be considered as well as the question as to whether an institutional standard or policy is even a goal at all. The cultural and political appropriateness of normative standards or public policies must be carefully considered. In situations of the weak state or a highly oppressive government, public policies may be considered inoperable or even unfavorable. Alternative types of standards or policies at different levels and by other sectors may exist or be considered as optimal. Thus, the relevance of standards or policies must be considered to adjust the

category of strong sustainability according to the highest sustainability goal, which may or may not involve establishing institutional standards.

5.3 Conclusion to Chapter 4: Considerations of Contextual Framework and the Determinants of Sustainability

Shediac-Rizkallah and Bone's (1998) framework for conceptualizing program sustainability is recognized as the most comprehensive and integrated framework for the sustainability of health education and promotion programs [13, 14]. In Chapter 4, we adapted this framework to study the influential factors in the sustainability of two child nutrition programs. We supplemented Shediac-Rizkallah and Bone's three major groups of influential factors (project design and implementation factors, factors within the organizational setting, and factors in the community environment) with a few additional factors based on literature and our experience, and elaborated them into theoretical propositions, which we tested deductively between cases of communities with and without sustained program activities.

We found this framework to be highly relevant for our study programs, which included health and nutrition education and promotion and focused on behavior change activities, but we recognize that contextual patterns for program sustainability are conditioned by the intervention model. Thus this framework, which emphasizes factors such as training/education and co-financing in the program design and extensive participation of the beneficiary community, may not be relevant for the sustainability of certain intervention programs, such as those that require maintenance of large material inputs such as vaccines.

While this framework was relevant in assessing the determinants of sustainability in our study context, there were some specific considerations. First, similar to our findings in Chapter 3, the analysis of factors within the organization setting requires specificity of the structure and context of each implementing organization. For example, factors of organizational strength such as internal integration and access to financial resources within a community water board may simply not exist as

factors among community health agents. Second, a clear definition of the community is required. Given that community factors include perceptions, attitudes, integration, and priorities, the types of persons (e.g. beneficiaries, fathers, leaders, general population) and the limits/boundaries of the community (e.g. geographical, social, political) need to be specified. Third, influences in the broader environment outside of the community (e.g. the state) should be considered, since macro-level contexts may influence the limits of other factors related to the program design and implementation, organizations, and the community.

In our study, we considered the factors related to the initial programs, implementing organizations, and the communities as interrelated conditions. Across both child nutrition programs, we identified three influential factors related to the initial program (broader community participation, positive perception of program impact, and intentional actions at exit), six organizational factors (integration, external coordination, higher skills level and training, positive perceived value of work, strong work motivation, and champions for child nutrition), and four community factors (perception of problem, integration, valuing of child nutrition, and champions) associated with program sustainability. Our findings suggest that a specific sustainability goal with a program design and implementation process that intentionally addresses these influential factors may likely contribute to improving program sustainability.

5.4 Contributions to the Literature

This study addresses several gaps in the literature. First, our study provides a careful look at the program impact pathways of three different child nutrition intervention programs. Although program theory is discussed extensively in literature and proposed as an initial step to program planning and evaluation, the method of mapping program theory or PIPs has not been explicitly used as an approach in nutrition interventions, particularly within developing country settings, until more recently [15, 16]. This research provides one of few studies on developing impact pathways of nutrition interventions.

This study addresses the gap in the limited methods for assessment of sustainability. We adapted a framework for assessing organizational routines as a measure of sustainability level and applied it in the context of three different child nutrition programs. Our study provides evidence for a tested method in and relevant to community-based intervention programs.

Our study also addresses the gap related to limited empirical evidence in support of integrated sustainability frameworks. Rather than the more common inductive approaches to identify influential factors of sustainability currently found in literature, we took a more deductive approach to test an extensive list of theoretically derived factors in the cases of communities with and without sustained program activities. This research provides a systematic study of the types and extent of program sustainability and the influential factors in a developing country setting.

5.5 Recommendations for Future Research

Where sustainability is a goal, program design and implementation should incorporate strategies to make activities routine and influence the contextual factors that matter. Our study provides an example of how to map the impact pathways of programs to articulate the causal linkages toward impact, as well as an example of how to assess program sustainability and its influential factors. Further work is necessary to apply our methods prospectively. In relation to PIPs, it is yet unclear whether program effectiveness is improved by common understanding or greater congruency in the PIPs at different operational levels. Also, how can theory-based evaluation or the use of PIPs better facilitate sustainability assessment? In terms of program sustainability measurement and determinants: how do the type and number of sustained activities per community relate to long-term program effectiveness? How should the measures of routine characteristics be analyzed to contrast greater variation between degrees of sustainability? What extent of the characteristics of routines leads to sustainability? Are our findings related to the influential factors associated with sustainability replicable? Do the influential factors associated with sustainability in our study lead to improve program sustainability? Where and how does temporality influence the three main groups of factors

or determinants of sustainability? Studies to address the characteristics of organizational routines and the influential factors of sustainability from program design and planning and as a part of monitoring and process evaluation should help answer some of these questions and provide greater evidence on their effects on sustainability outcomes.

In conclusion, our research provided a comprehensive assessment of sustainability of three different community-based child nutrition programs in the highland regions of Peru and provides a unique contribution to the literature. Further research on program sustainability is needed, particularly in developing country settings, in order to grow the evidence base and understanding of how to influence health and nutrition intervention programs to achieve sustainability.

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APPENDICES

APPENDIX A

A. List of program documents reviewed

Type of document	Title and year of publication
ADRA-Peru's PNI	
Evaluation reports:	• *Sistematización de la experiencia del Programa Nutrición Infantil: Adopción de la metodología del PNI por parte de la Red de Salud de Vilcashuamán*, 2003 [Systematization of the experience of the Child Nutrition Program: Adoption of the PNI methodology by the Vilcashuaman Health Network] • *Informe final de evaluación del Programa Titulo II de ADRA Perú*, 2008 [Final report of the ADRA Peru Title II Program]
Promotional materials:	• tri-fold pamphlet about PNI
Educational or instructional materials:	• *Las mejores comidas para crecer: Recetas para niños a partir de los 6 meses de edad y para toda la familia*, 2004 [The best foods to grow: recipes for children from 6 months of age and for the entire family] • presentation on PNI educational sessions
CARE-Peru's REDESA	
Evaluation reports:	• *Acciones efectivas para reducir la desnutrición crónica: Evidencias del cambio en zonas rurales del Perú (2003-2004),* 2005 [Effective actions to reduce chronic malnutrition: evidences of change in rural areas of Peru (2003-2004)] • *Impact of an intervention on food security: REDESA program final evaluation*, 2007
Promotional materials:	• *REDESA: por la seguridad alimentaria y la reducción de la pobreza*, 2005 [REDESA: for food security and reduction of poverty]
Educational or instructional materials:	• *Diseño, construcción y mantenimiento de letrinas ecológicas: La experiencia de Ayacucho*, 2005 [Design, construction and maintenance of ecological letrines: the experience of Ayacucho] • *Formación y fortalecimiento de cadenas productivas agrarias en Ancash: El caso de la alcachofa, haba y maíz choclo*, 2005 [Formation and strengthening of agrarian productive chains in Ancash: the case of artichokes, haba beans and corn] • *Buenas prácticas de lavado de manos en el Callejón de Huaylas y Conchudos (2003-2004*), 2006 [Good practices in hand washing in the Callejón of Huaylas and Conchudos (2003-2004)] • *Conserjería comunitaria para incorporar hábitos saludables de nutrición en los hogares: Experiencia en Tambillo, Ayacucho*, 2006 [Community counseling to incorporate healthy nutrition habits at home: experience in Tambillo, Ayacucho] • *Estrategia, metodologías y herramientas para la gestión comunitaria y local de la seguridad alimentaria*, 2006 [Strategy, methodologies and tools for community and local management of food security] • *La familia saludable en la chacra integral*, 2006 [The healthy family in the integrated farm plot] • *Manejo integral de plagas: Guía para pequeños productores agrarios*, 2006 [Integrated management of plagues: guide for small farm producers] • *Sesión demostrativa para hacer preparaciones nutritivas: Guía para agentes comunitarios de salud*, 2006 [Demonstrative session to prepare nutritious foods: guide for community health agents] • *Una experiencia de análisis de riesgo en planes de negocio rural*, 2006 [An experience of risk analysis in rural business plans] • *Experiencias de gestión local y presupuesto participativo: Aportes a la participación, la gobernabilidad y la gestión pública*, 2007 [Experiences in local management and participatory budget: tools for participation, governance and public management] • *La experiencia de constitución del centro de competitividad de Ayacucho*, 2007 [The experience of developing the competitive center of Ayacucho]
UNICEF's Buen Inicio	
Evaluation reports:	• *Evaluación externa del Programa Buen Inicio en la Vida*, 2007 [External evaluation of the Good Start in Life Program]
Promotional materials:	• *Resumen de "Iniciativa Buen Inicio" (1999-2006),* 2007 [Summary of the "Good Start Initiative" (1999-2006)] • informational booklet on Buen Inicio en la Vida, 2005
Educational or instructional materials:	• *Crecimiento y desarrollo temprano: practicas y recursos*, 2003 [Growth and early development: practices and resources]

APPENDIX B

B.1 Interview guide for eliciting program theory in English

Assessment of program models to improve infant and young child feeding in Peru

Interview Guide for Program Coordinators/Managers

June–August 2007

QUESTIONS	FOLLOW-UP Qs	PROBES AND COMMENTS
Program Design and Development		
1. Tell me about what motivated this program to be developed. [Why was this program developed?]		**[To elicit rationale for program]**
2. What are the program goals and objectives?	- Targeted geographical location? - Target population? - Criteria for participation and termination?	
3. What is the measure of success for the program? (i.e., expected outcome)	- Expected to reach outcomes through the program alone, or assumed activities/services of other existing programs?	**[To elicit definition of adequacy – child or population level?]**
4. How does this program help nutrition? (specify different program activities and repeat question)	- Was any specific framework used to design the program? (e.g. USAID results framework) - What are the specific components of the program? (strategies, activities)	**[To elicit log frame design or other logic model used]** - Inputs, activities, participants, outputs, immediate to long-term outcomes - Components such as GMP, food supplements, education
5. What were some possible risks to implementing the program?	- Any assumptions about the context of the community and delivery structure?	
6. How well did the program work?	- Facilitating or promoting factors? - Barriers? - At the context of community or delivery structure?	**[To elicit contextual factors that came into play]**
7. Were any of those contextual factors designed into the program? (specify based on previous responses)		- Examples: participatory training
Communication of Program Theory (Program planning)		
8. How was the program rolled out/ implemented?	- Who was responsible for what, at what levels? - Levels of implementation/ administrative/ communication	

9. Was the program design/plan communicated to the different levels, and how?	- Who, what information, where, when, how often? - Facilitating or promoting factors to communication? - Barriers?	**[To elicit process of communication of PT]**
Adaptation and Operationalization of Program Theory (Program implementation)		
10. At the local implementation level, who is responsible for what tasks?	- Where, when, how often? - Supervision or accountability structure? (who, what info, where, when, how often)	
11. Were there any difficulties or challenges to implementing the program as planned/expected?	- At the context of community and/or delivery structure	
12. How did you react to these difficulties/challenges?		**[To elicit adaptation of PT]**
13. Did you apply these "adjustments" more than once or regularly? Did these "adjustments" get shared with other staff members or get incorporated into the program?		
Program Monitoring and Evaluation		
14. How did you monitor the progress of the program (timeliness, completeness, efficiency)?	- Who, what information, where, when, how often? - How information used, by whom?	
15. Was there an evaluation of the program?	- Who, what type and findings, where, when? - How information used, by whom?	
16. Was there a plan to continue or adjust or expand the program?	- Details of plan	
Immediate Post-Interview Notes and Observations:		

B.2 Interview guide for eliciting program theory in Spanish

Evaluación de los modelos de programa para mejorar la alimentación infantil en Perú

Guía de entrevista para los Planificadores/Gerentes de Programa

Junio – Agosto de 2007

PREGUNTAS	SEGUIMIENTO	COMENTARIOS (para uso interno)
Diseño y desarrollo del programa		
1. ¿Cuándo y por qué (cual propósito) fue desarrollado este programa?		**[Para sacar la justificación del programa]**
2. ¿Cuáles fueron las metas y los objetivos del programa?	- ¿Sitio geográfica? - ¿Población objetivo? - ¿Criterio para participación y terminación?	
3. Cuáles fueron las medidas del éxito para el programa? (resultados esperados)	- ¿Se esperó cumplir los resultados a través del programa solo, o junto con otras actividades/servicios de otros programas existentes?	**[Para sacar la definición se adecuaría – ¿al nivel del niño o población?]**
4. ¿Cómo el programa ayuda a la nutrición infantil? (Especificar los diferentes componentes del programa)	- ¿Usó algún marco conceptual especifico para diseñar el programa? (marco de resultados de USAID) - ¿Cuáles fueron los componentes del programa? (estrategias y actividades)	**[Para sacar el diseño por marco lógico o otros marcos conceptuales utilizados]** - Recursos, actividades, participantes, resultados (inmediato a largo plazo) - Componentes como vigilancia de crecimiento, suplementos alimentarios, educación
5. ¿Cuáles fueron algunos riesgos o retos anticipados para la implementación del programa?	- ¿Hizo algunas asunciones sobre el contexto de la comunidad o estructura de servicio?	
6. ¿Cuán bien funcionó el programa?	- ¿Factores facilitadores o promotores? - ¿Barreras? (Al contexto de la comunidad o estructura de servicio).	**[Para sacar factores relevantes de contexto]**
7. ¿Fueron incorporado estos factores de contexto en el diseño del programa?		- Ejemplos: entrenamiento participativo
Comunicación sobre la teoría de programa (Planificación de programa)		
8. ¿Cómo fue implementado el programa? ¿Quiénes fueron involucrados?	- ¿Quién fue responsable para qué, a cuál nivel? (Niveles de implementación, administración y comunicación)	
9. ¿Fue comunicado el diseño y plan del programa a los diferentes niveles, y cómo?	- ¿A Quién, cuál información, dónde, cuándo y con qué frecuencia? - ¿Factores facilitadores o promotores a comunicación? - ¿Barreras?	**[Para sacar el proceso de comunicación sobre el programa]**

Adaptación y operationalización de la teoría de programa (Implementación de programa)		
10. ¿A nivel local de implementación, quién es responsable para tales tareas?	- ¿Dónde, cuándo y con qué frecuencia? - ¿Estructura de supervisión o rendición de cuentas? (quién, cuál información, dónde, cuándo, con qué frecuencia)	
11. ¿Fueron algunas dificultades o retos a la implementación del programa como planificado o esperado?	(Al contexto de la comunidad y/o estructura de servicio)	
12. ¿Cómo reaccionó en frente a estas dificultades o retos?		**[Para sacar la adaptación de la teoría de programa]**
13. ¿Aplicó estos "ajustes" más que una vez o regularmente? ¿Compartió estos "ajustes" con otros personales o fueron incorporados en el programa?		
Monitoreo y evaluación de programa		
14. ¿Cómo vigiló el progreso del programa (cumpliendo con el tiempo, cumpliendo con el programa en su totalidad, eficientemente)?	- ¿Quién, cuál información, dónde, cuándo, con qué frecuencia? - ¿Cómo usó la información, y por quién?	
15. ¿Realizó una evaluación del programa?	- ¿Quién lo hizo, qué tipo de evaluación y resultados, dónde, cuándo? - ¿Cómo usó la información, y por quién?	
16. ¿Hubo un plan para continuar o ajustar o ampliar el programa?		
Sostenibilidad del programa		
17. ¿Cuáles son los elementos de programa que todavía se implementan y por qué?	- ¿Factores facilitadores o promotores? - ¿Barreras?	
18. ¿Parecen estos elementos lo mismo como cuando fueron implementados inicialmente, o cambiaron o realizaron ajustes en alguna forma?	- ¿Factores facilitadores o promotores? - ¿Barreras?	
19. ¿Cuáles son los elementos de programa que NO están implementados y por qué?	- ¿Factores facilitadores o promotores? - ¿Barreras?	
20. ¿Hay alguna otra consulta o comentario que quiere decirme sobre el programa?		
Notas y observaciones inmediatas después de la entrevista:		

APPENDIX C

C. Interview guide on program sustainability in Spanish

GUIA DE ENTREVISTA
Octubre de 2008 – Julio de 2009

"Evaluación de la sostenibilidad de los programas comunitarios para mejorar la nutrición infantil en el Perú"

Guía de entrevista para el ejecutor del programa
(Gobierno Local, Programa del Vaso de Leche, Establecimiento de Salud)

Nombre:	_____
Institución/organización:	_____
Cargo:	_____
Dirección/contacto:	_____

ACTIVIDADES DE APERTURA:

Formato 003	• ¿Sabe sobre el programa __(nombre del proyecto original)___? • ¿Cuándo inició PROGRAMA en COMUNIDAD? • ¿Cuándo terminó el apoyo externo de ONG en COMUNIDAD? • ¿Impulsó este programa por alguien en COMUNIDAD? • ¿Cree que este programa fue exitoso? • ¿Qué actividades han desarrolladas con PROGRAMA? • ¿Cuáles de estas actividades siguen hasta el momento? • ¿Hubo alguna forma de "transferencia" de las actividades? 1. Lista de las actividades que se siguen desarrollando y otras actividades de nutrición infantil y seguridad alimentaría al nivel comunitario. ***Indague:*** • ¿Quiénes participan en la planificación de las ACTIVIDADES? ¿De que forma?
Formato 004	2. Mapeo de todos los grupos e instituciones involucrados en estas actividades y sus relaciones.

PARTE 1: TEORIA DEL PROGRAMA [~30 minutos]

Objetivo y visión general: Tratamos de comprender los mecanismos o las vías de las actividades de las diferentes perspectivas de los actores. Conduzca a los entrevistados a declarar explícitamente las metas y objetivos, los resultados esperados, y las actividades. Luego, para cada actividad, orientar la discusión sobre cómo lograr los resultados inmediatos (por ejemplo, el cambio de comportamiento) y resultados a largo plazo (por ejemplo, el impacto en la salud).

Teoría del programa tiene dos capas:

(1) Componentes/actividades del programa → Resultados inmediatos (cambios de comportamiento o practicas)

(2) Resultados inmediatos → Resultados a largo plazo (impacto en la nutrición y salud)

A. Introducción y antecedentes [15 minutos]

Vamos a comenzar con preguntas para entender su papel y sobre las actividades.	
1. ¿Cuál es el cargo que está ocupando actualmente? [*Indague de las descripciones de "practica", funciones y actividades.*] ***Indague:*** • ¿Hace cuánto tiempo está ocupando este cargo? • ¿Hace cuánto tiempo está trabajando en las ACTIVIDADES?	
2. ¿Cuales son las metas de las ACTIVIDADES? *(Meta: eliminar la desnutrición crónica)* *¿Para que se están desarrollando estas ACTIVIDADES? *[Indague de los problemas subyacentes que las actividades están tratando de abordar u otras justificaciones/motivos.]*	
3. ¿Cuál es el objetivo de la ACTIVIDAD? *(para cada actividad)* *¿Qué cambios desea lograr con la ACTIVIDAD?	
4. ¿Estas ACTIVIDADES son suficientes para lograr la meta? ¿Qué más es necesario?	
5. ¿Que tan bien están funcionando las ACTIVIDADES? [*Indague de la percepción de la efectividad, así como la situación actual de las actividades.*] ***Indague*** • ¿Ha cambiado algo, como resultado de las ACTIVIDADES? (*para bien o para mal*). • Los beneficios ¿son conocidos por todos?	
6. De las actividades en ejecución, ¿algunos son similares o todos son diferentes? *(duplicación, complementación, etc.)* ***Indague*** • ¿Hay algunas otras instituciones ejecutando las mismas actividades?	

B. Actividades y las vías de lograr los resultados [10-15 minutos por actividad]

Vamos a hablar mas en detalle acerca de cómo funciona **cada actividad**.	
7. Cuéntame que pasa durante esta ACTIVIDAD. [*Indague de los pasos y contenidos de la actividad.*]	
8. (*¿De qué forma la actividad _____ contribuye a lograr los resultados esperados?*) [*Guía de la explicación de cómo las actividades funcionan, es decir, los mecanismos de la actividad que llevan a los resultados inmediatos, luego los resultados a largo plazo.*]	

Indague: • ¿Quién es la población objetivo? • ¿Quién es el responsable? • ¿Dónde se lleva a cabo esta ACTIVIDAD? • ¿Cada que tiempo se realiza esta ACTIVIDAD? • ¿En cuanto tiempo se lleva a cabo esta ACTIVIDAD? • **¿Qué cambios de conocimiento o prácticas van a producir en los beneficiarios?** • **¿Qué ocurre una vez los beneficiarios regresan a sus casas?** • ¿Cómo son los beneficiarios que ponen en práctica lo que aprenden? • ¿Qué cosas favorecen que los beneficiarios pongan en práctica lo que aprenden? • ¿Cómo son los beneficiarios que no ponen en práctica? • ¿Qué cosas impiden que los beneficiarios pongan en práctica? • ¿Qué hace Ud. frente a esa situación? • **¿Como estas practicas van a resultar en BENEFICIOS DE SALUD Y NUTRICION?** • ¿Qué cosas están facilitando lograr BENEFICIOS? • ¿Que esta impidiendo?	
9. ¿Cree que esta ACTIVIDAD es efectiva? ¿Por que? [*Indague de razones por las que esta actividad se considera efectiva o inefectiva.*]	

[**NOTA:** *Repite las preguntas 7-9 para cada actividad.*]

PARTE 2: EL NIVEL DE SOSTENIBILIDAD DEL PROGRAMA [~40 minutos]

Objetivo y visión general: Tratamos de entender la profundidad y amplitud actual de las cuatro dimensiones del proceso de rutina (la memoria, la adaptación, los valores, y las reglas) y de la institucionalización en relación a las actividades del programa que implica la organización afiliada con el entrevistado. Además de obtener respuestas completas, pedir para ver los documentos de apoyo, donde sea posible y pertinente.

Memoria → estructura o recursos estables
Adaptación → ajustes al contexto y la realidad
Valores → orientación colectiva y cohesión
Reglas → organización del trabajo o guías para tomar decisiones

A. La memoria [15 minutos]

Vamos a discutir acerca de los recursos involucrados en **cada actividad sostenida** que involucra a la ORGANIZACION.	
1. ¿Quien es responsable para ejecutar esta ACTIVIDAD? ***Indague:*** • ¿Qué tipo de preparación tiene? ¿Esta calificada? • ¿Qué tareas cumple? • ¿Cuánto tiempo viene ejerciendo ese cargo? • ¿Ha recibido capacitaciones para ejercer este cargo? • ¿Cada que tiempo cambian al personal responsable de la ACTIVIDAD? • ¿Dónde está la persona que anteriormente ejerció esa responsabilidad? *(se les separó de la institución/ organización, se les ascendió, se les cambio de responsabilidad, se les transfirió a otra área)* • ¿Todos en la ORGANIZACION conocen de esta ACTIVIDAD?	

2. ¿Se necesita dinero para esta ACTIVIDAD? ¿Dispone del dinero? [*Solicite de ver el presupuesto, si es posible.*] ***Indague:*** • ¿Cuál es la cantidad de dinero que tiene para ejecutar la ACTIVIDAD? • ¿Es suficiente ese monto? • ¿Cuál es la fuente de esos fondos? • ¿Anteriormente disponían de estos fondos? • ¿Cuentan con ese dinero el próximo año? • ¿Quien es responsable para conseguir y manejar estos fondos? • ¿Desearía la comunidad pagar por esta ACTIVIDAD?	
3. ¿Qué materiales se necesita para esta ACTIVIDAD? ¿Dispone de estos materiales? [*Solicite de ver los materiales, si es posible.*] ***Indague:*** • ¿Los materiales con los que cuenta son adecuados? • ¿Los materiales con que cuenta son suficientes? • ¿Se puede volver a utilizar esos materiales? • ¿Hay materiales disponibles para el próximo año? • ¿Hay alguna persona responsable para conseguir esos materiales?	
4. ¿Cuenta con otros tipos de recursos para realizar esta ACTIVIDAD? ***Indague:*** • ¿Son adecuados esos recursos para esta ACTIVIDAD? • ¿Son suficientes esos recursos para esta ACTIVIDAD? • ¿Van a contar con esos recursos el próximo año? • ¿Hay alguna persona encargada de realizar gestiones para conseguir esos recursos?	

B. La adaptación [9 minutos]

Hablemos acerca de algunas adaptaciones realizadas a la actividad.	
5. ¿Por que está usando esta metodología para realizar esta ACTIVIDAD? [*Indague de las razones para determinar si los obstáculos a la adaptación existen.*]	
6. ¿La ORGANIZACION realizó algunos cambios para realizar la ACTIVIDAD?	
7. ¿Cómo miden los efectos de la ACTIVIDAD? ¿Cómo se adapta a los efectos? [*Indague de ejemplos concretos y las razones.*]	

C. Los valores [8 minutos]

Hablemos de cualquier reflexión colectiva de creencias y códigos relacionada con la actividad.	
8. ¿Se usa algún símbolo/logotipo para esta ACTIVIDAD? [*Solicite de verlos, si es posible.*]	
9. ¿Tiene alguna palabra especial/alguna forma de lenguaje que se usa en esta ACTIVIDAD? *[Busca por algunas palabras o nombres usado con el PROGRAMA.]*	
10. ¿Se realiza reuniones para conversar sobre la ACTIVIDAD? ¿Tiene alguna forma de celebración? (*forma de conmemora*)	

D. Las reglas [5 minutos]

Hablemos de las reglas que guían la toma de decisiones y la acción.

11. ¿Hay algún supervisor para esta ACTIVIDAD?	
12. ¿Esta ACTIVIDAD esta dentro de las funciones regulares de la ORGANIZACION? ***Indague:*** • ¿Esta ACTIVIDAD es permanente en la ORGANIZACIÓN? • ¿En que otros momentos se realiza esta ACTIVIDAD? *(relación con otras actividades que realiza)*	
13. ¿Tienen algún documento donde se indique sus responsabilidades?	
14. ¿Cuenta con un documento que indique la forma en que debe realizar la ACTIVIDAD? [*Solicite de verlo, si es posible.*]	

E. Estándares institucionales [3 minutos]

15. ¿Esta ACTIVIDAD está respaldada por alguna ordenanza o por alguna ley? [*Solicite una copia de la ordenanza, si es posible.*]	

<u>PARTE 3</u>: FACTORES CONTEXTUALES QUE INFLUYEN LA SOSTENIBILIDAD [~30 minutos]

Objetivo y visión general: Tratamos de identificar los factores contextuales relacionados con la organización, la comunidad, y en el macro-nivel, y comprender su influencia en la sostenibilidad del programa.

Preguntas de comprobación: 1. Para Ud. ¿qué es sostenibilidad?	
2. ¿Cree que las ACTIVIDADES son sostenibles?	

A. Contexto organizacional [15 minutos]

Vamos a discutir sobre el contexto de la ORGANIZACION.	
1. ¿Cuál es la misión y objetivo de la ORGANIZACION? ¿Cuáles son las actividades de la ORGANIZACION?	
2. ¿Cuántas personas trabajan en la ORGANIZACION? ¿Con que áreas cuenta? ¿Cuál es la estructura organizacional?	
3. ¿Hay alguna forma de incentivos en la ORGANIZACION? ¿De qué forma se incentiva al personal?	
4. ¿Existe una persona en la ORGANIZACIÓN que sea entusiasta para llevar a cabo las ACTIVIDADES?	
5. ¿Cómo relaciona con otras organizaciones? ¿Recibe apoyo de niveles superiores para las ACTIVIDADES? *[Indague de cómo funcionan las conexiones o redes, ya sea por encima, debajo, o lateralmente.]*	
6. ¿Cree que la ORGANIZACIÓN continuará con estas ACTIVIDADES? (o ¿Por qué la ORGANIZACIÓN no trabaja en el TEMA?) ***Indague*** • ¿Que influyen la continuidad o no de las ACTIVIDADES?	

B. Contexto de la comunidad [10 minutos]

Vamos a discutir acerca de la comunidad.	
7. ¿Cree que exista el problema de la desnutrición infantil en COMUNIDAD? ***Indague:*** • ¿De qué forma o qué tipo de desnutrición infantil? • ¿Cuáles son las causas de ese problema?	
8. ¿Existe una persona en COMUNIDAD que impulsa las ACTIVIDADES en la comunidad?	
9. ¿El alcalde (menor) participa/apoya estas actividades? ***Indague:*** • ¿Cómo apoya el alcalde?	
10. ¿De qué manera participa la comunidad en las ACTIVIDADES? ***Indague:*** • ¿En cuales de las actividades participa la población? • ¿Participan todos o solo una parte? • ¿Participan cada vez que hay actividades?	
11. ¿Hay otras instituciones u proyectos que están trabajando en COMUNIDAD?	
12. Cuéntame sobre COMUNIDAD. *[valores, creencias, situación socioeconómica, etc.]* ***Indague:*** • ¿Cuál es la importancia que le dan a la nutrición infantil?	

C. Contexto al nivel macro [5 minutos]

Por último, hablemos acerca de influencias en los planos distrital, regional y nacional.	
13. ¿Hay algunas cosas en el distrito que favorece o impide el trabajo en el TEMA? ***Indague:*** • ¿Qué está haciendo la Municipalidad en el TEMA?	
14. ¿Hay algunas cosas en la región que favorece o impide el trabajo en el TEMA? ***Indague:*** • ¿Qué está haciendo el Gobierno Regional en el TEMA?	
15. ¿Hay algunas cosas en el nivel nacional que favorece o impide el trabajo en el TEMA? ***Indague:*** • ¿Qué está haciendo el Gobierno Nacional en el TEMA?	

Pregunta de cierre: 16. Hemos acabado con todas nuestras preguntas preparadas. ¿Hay algo más que deseas decirnos sobre las ACTIVIDADES?	

Gracias por su tiempo y su participación.

APPENDIX D

D. Oral consent form

Oral Consent Statement

Critical assessment of the sustainability of community-based child nutrition programs in Peru

Consent for Participation: Program implementer

Good morning/afternoon, _____.

My name is Sunny Kim, and I am a researcher with the Cornell University in NY, U.S.A. I am conducting a study in collaboration with the Instituto de Investigacion Nutricional (IIN) in Lima, Peru. I am studying the sustainability of community-based child nutrition programs, particularly the program ___(program name)____, which was initially implemented in your community with the external support of ___(NGO name)____.

You are invited to participate in this study because of your involvement in the implementation of the program.

If you agree to participate in this study, I will ask you some questions about the implementation and continuation of the program and its activities. This interview will last approximately 2 hours.

Risks and benefits: I do not anticipate any risks to you participating in this study other than those encountered in day-to-day life. But there might be a risk that you may find some of the questions about your job conditions to be sensitive. There are no benefits to you for your participation.

Voluntary participation: Taking part in this study is completely voluntary. You may skip any questions that you do not want to answer. You are also free to withdraw from the study at any time. If you decide not to participate or to skip some of the questions, it will not affect your current or future relationship with your employer.

Confidentiality: The records of this study will be kept private. In any sort of report we make public, we will not include any information that will make it possible to identify you. Research records will be kept in a locked file. Only the researchers involved in this study at Cornell University and IIN will have access to the records.

If you have questions: If you have any questions, please free to ask them now. If you have questions later, I will be giving you my contact information and that of Dr. Hilary Creed-Kanashiro, senior researcher at IIN.

Are you willing to participate? _____ Yes
_____ No

Consent for Audio Recording: Program staff

With your permission, I would also like to record the interview.

Voluntary participation: Taking part in this study and recording the interview are completely voluntary. You may skip any questions that you do not want to answer. You are also free to withdraw from the study at any time. If you decide not to participate or to skip some of the questions, it will not affect your current or future relationship with your employer.

Confidentiality: The records of this study will be kept private. The audio recording will be transcribed, and no parts of the recording will be presented in audio format. In any sort of report we make public, we will not include any information that will make it possible to identify you. Research records will be kept in a locked file. Only the researchers involved in this study at Cornell University and IIN will have access to the records.

If you have questions: If you have any questions, please free to ask them now. If you have questions later, I will be giving you my contact information and that of Dr. Hilary Creed-Kanashiro, senior researcher at IIN.

Are you willing to be recorded during this interview? _____ Yes
_____ No

Thank you.

<cut here>

Questions about the study, "*Critical assessment of program models to improve infant and young child feeding in Peru*"?

Please contact Sunny Kim at ssk46@cornell.edu or at 607-255-2621. You can reach Dr. Hilary Creed-Kanashiro at hcreed@iin.sld.pe or (51-1) 349-6023. If you have any questions or concerns regarding your rights as a subject in this study, you may contact the University Committee on Human Subjects (UCHS) at 607-255-5138 or access their website at http://www.osp.cornell.edu/Compliance/UCHS/homepageUCHS.htm.

APPENDIX E

E. List of interviews and focus groups

NGO	Code	District	CP/Community	Org	Position title	Date
ADRA	A1-d1-c1-Municipalidad	Ayacucho	Huascahura	Municipalidad	Gerenta de Desarrollo Social	11/21/2008
ADRA	A1-d1-c1-PVLdistrito	Ayacucho	Huascahura	PVL distrital	Gerente de PVL	11/20/2008
ADRA	A1-d1-c1-PSjefa	Ayacucho	Huascahura	PS	Jefa del PS (medico)	11/25/2008
ADRA	A1-d1-c1-PStecnica	Ayacucho	Huascahura	PS	Tecnica en enfermeria (Responsable de nutricion)	11/20/2008
ADRA	A1-d1-c1-JDC	Ayacucho	Huascahura	JDC	Secretario y tesorero	11/30/2008
ADRA	A1-d1-c1-ACS	Ayacucho	Huascahura	ACS	2 ACS	11/20/2008
ADRA	A1-d1-c1-ExACS	Ayacucho	Huascahura	ACS	Ex-representante de los ACS	11/20/2008
ADRA	A1-d1-c1-Madres4	Ayacucho	Huascahura	Madres	4 madres	11/20/2008
ADRA	A1-d2-c2-Municipalidad	Socos	San Rafael	Municipalidad	Sub Gerente de Desarrollo Social y asistente	12/3/2008
ADRA	A1-d2-c2-CS	Socos	San Rafael	CS	Enfermera y responsable de la estrategia del nino	
ADRA	A1-d2-c2-PS	Socos	San Rafael	PS	Obstetriz (Jefa de PS)	12/4/2008
ADRA	A1-d2-c2-JDC	Socos	San Rafael	JDC	Presidente y representante de vigilancia comunal	12/3/2008
ADRA	A1-d2-c2-ExACS	Socos	San Rafael	ACS	Ex-promotor de salud	12/7/2008
ADRA	A1-d2-c2-Madres5	Socos	San Rafael	Madres	5 madres	12/5/2008
ADRA	A1-d3-c3-4-Municipalidad	Vinchos	AH y Arizona	Municipalidad	SubGerente de Desarrollo Social y Humano	1/30/2009
ADRA	A1-d3-c3-4-PS	Vinchos	AH y Arizona	PS	Obstetriz (Jefa de PS)	1/29/2009
ADRA	A1-d3-c3-JDC	VInchos	Arizona	JDC	Presidente	1/29/2009
ADRA	A1-d3-c3-ACS	Vinchos	Arizona	ACS	Promotora	1/28/2009
ADRA	A1-d3-c3-ExACS	Vinchos	Arizona	ACS	Ex-promotor de salud	2/5/2009
ADRA	A1-d3-c3-Madres6	Vinchos	Arizona	Madres	6 madres	2/1/2009
ADRA	A1-d3-c4-JDC	Vinchos	Anchac Huasi	JDC	Presidente y secretario	1/26/2009
ADRA	A1-d3-c4-ACS	Vinchos	Anchac Huasi	ACS	Promotor (cont.)	1/27/2009
ADRA	A1-d3-c4-Madres4	Vinchos	Anchac Huasi	Madres	4 madres ?	1/28/2009
ADRA	A1-d4-c5-6-Municipalidad	Jesus Nazareno	Chacco y San Miguel de Ayacucho	Municipalidad	SubGerente de Promocion Social y PVL (personal del campo)	3/20/2009
ADRA	A1-d4-c5-6-CS	Jesus Nazareno	Chacco y San Miguel de Ayacucho	CS	Tecnica de enfermeria	3/19/2009
ADRA	A1-d4-c5-JDC	Jesus Nazareno	Chacco	JDC	Presidente	3/20/2009
ADRA	A1-d4-c5-ExACS	Jesus Nazareno	Chacco	ACS	Ex-promotora de salud	3/20/2009
ADRA	A1-d4-c5-Madres5	Jesus Nazareno	Chacco	Madres	5 madres	3/22/2009
ADRA	A1-d4-c6-JDC	Jesus Nazareno	San Miguel de Ayacucho	JDC	Presidente	3/25/2009
ADRA	A1-d4-c6-ExACS	Jesus Nazareno	San Miguel de Ayacucho	ACS	Ex-promotora de salud	3/24/2009
ADRA	A1-d4-c6-PVLlocal	Jesus Nazareno	San Miguel de Ayacucho	PVL local	Presidente del Comite de PVL	3/25/2009
ADRA	A1-d4-c6-Madres4	Jesus Nazareno	San Miguel de Ayacucho	Madres	4 madres	3/28/2009
ADRA	A2-d5-c7-11-Municipalidad	Cajamarca	Cumbe, El Estanco	Municipalidad	Sub Gerente de Programas Asistenciales (cont.)	4/28/2009
ADRA	A2-d5-c7-11-ExPVLdistrito	Cajamarca	Cumbe, El Estanco	Municipalidad	Promotor del PVL	4/15/2009
ADRA	A2-d5-c7-CS	Cajamarca	Cumbe, El Estanco	CS	Coordinador del Area de Nutricion (cont.)	4/16/2009

ADRA	A2-d5-c7-JV	Cajamarca	Cumbe, El Estanco	JuntaVecinal	Presidente	4/18/2009
ADRA	A2-d5-c7-PVLlocal	Cajamarca	Cumbe, El Estanco	PVL	Presidente del Comite de PVL	4/16/2009
ADRA	A2-d5-c7-Madres4	Cajamarca	Cumbe, El Estanco	Madres	4 madres (cont.)	4/18/2009
ADRA	A2-d5-c8-PS	Cajamarca	Mollepampa Alta	PS	Coordinadora del Area de Nino (2 cont.)	4/21/2009
ADRA	A2-d5-c8-JV	Cajamarca	Mollepampa Alta	JuntaVecinal	Presidente o Alcalde Vecinal	4/22/2009
ADRA	A2-d5-c8-ACS	Cajamarca	Mollepampa Alta	ACS	Promotora de salud (cont.)	4/23/2009
ADRA	A2-d5-c8-Madres5	Cajamarca	Mollepampa Alta	Madres	5 madres	4/28/2009
ADRA	A2-d5-c8-Madres7	Cajamarca	Mollepampa Alta	Madres	7 madres	4/28/2009
ADRA	A2-d5-c9-PS	Cajamarca	Pariamarca	PS	Coordinadora del Area de Nino	
ADRA	A2-d5-c9-ConsejoMenor	Cajamarca	Pariamarca	ConsejoMenor	Alcalde	5/1/2009
ADRA	A2-d5-c9-ACS	Cajamarca	Pariamarca	ACS	Promotora de salud	5/3/2009
ADRA	A2-d5-c9-Madres3	Cajamarca	Pariamarca	Madres	3 madres	5/8/2009
ADRA	A2-d5-c10-PS	Cajamarca	Pata Pata	PS	Coordinadora del Area de Nino (2 cont.)	5/4/2009
ADRA	A2-d5-c10-ACS	Cajamarca	Pata Pata	ACS	Promotor de salud y ex-promotora de salud	5/5/2009
ADRA	A2-d5-c10-Madres4	Cajamarca	Pata Pata	Madres	4 madres	5/7/2009
ADRA	A2-d5-c11-Gobernabilidad	Cajamarca	Porconcillo Alto	Gobernabilidad	Teniente gobernador	5/12/2009
ADRA	A2-d5-c11-ACS	Cajamarca	Porconcillo Alto	ACS	Promotor de salud (2 cont.)	5/13/2009
ADRA	A2-d5-c11-PS	Cajamarca	Porconcillo Alto	PS	Enfermera y responsable de la promocion de salud	5/15/2009
ADRA	A2-d5-c11-Madres4	Cajamarca	Porconcillo Alto	Madres	4 madres	5/17/2009
ADRA	A2-d6-c12-Municipalidad	Cutervo	Cruz Roja	Municipalidad	Jefe de la Unidad de Programas Sociales	6/1/2009
ADRA	A2-d6-c12-MicroRed	Cutervo	Cruz Roja	MicroRed	Encargada del Area de Nutricion, Tecnica, Secretaria	5/29/2009
ADRA	A2-d6-c12-PS	Cutervo	Cruz Roja	PS	Responsible del Area de Nino	5/30/2009
ADRA	A2-d6-c12-Gobernabilidad	Cutervo	Cruz Roja	Gobernabilidad	Teniente Gobernador	5/29/2009
ADRA	A2-d6-c12-ACS	Cutervo	Cruz Roja	ACS	Promotor de salud	5/31/2009
ADRA	A2-d6-c12-Madres5	Cutervo	Cruz Roja	Madres	5 madres (cont.)	6/1/2009
CARE	C1-d1-c1-Municipalidad	Acocro	Acocro	Municipalidad	SubGerente de Promocion y Proteccion Social	12/12/2008
CARE	C1-d1-c1-CS	Acocro	Acocro	CS	Tecnica en enfermeria	12/11/2008
CARE	C1-d1-c1-JDC	Acocro	Acocro	JDC	Presidente (cont.)	12/8/2008
CARE	C1-d1-c1-JASS	Acocro	Acocro	JASS	Presidente	12/11/2008
CARE	C1-d1-c1-ACS	Acocro	Acocro	ACS	Promotor	12/11/2008
CARE	C1-d1-c1-Madres5	Acocro	Acocro	Madres	5 madres	12/13/2008
CARE	C1-d2-c2-Municipalidad	Tambillo	Chilcabamba	Municipalidad	SubGerente de Desarrollo Social y Humano (cont.)	2/26/2009
CARE	C1-d2-c2-PS	Tambillo	Chilcabamba	PS	Enfermero (Responsable del PS) (cont.)	2/10/2009
CARE	C1-d2-c2-JDC	Tambillo	Chilcabamba	JDC	Presidente (cont.)	2/13/2009
CARE	C1-d2-c2-JASS	Tambillo	Chilcabamba	JASS	Presidente (cont.)	2/14/2009
CARE	C1-d2-c2-ACS	Tambillo	Chilcabamba	ACS	Promotor	2/13/2009
CARE	C1-d2-c2-Madres4	Tambillo	Chilcabamba	Madres	4 madres	2/14/2009
CARE	C1-d3-c3-4-Municipalidad	Quinua	Moya y Nueva Esperanza	Municipalidad	Encargado de Comision de Programas Sociales	2/19/2009

CARE	C1-d3-c3-4-CS	Quinua	Moya y Nueva Esperanza	CS	Enfermera (cont.)	2/24/2009
CARE	C1-d3-c3-JDC	Quinua	Moya	JDC	Presidente	2/27/2009
CARE	C1-d3-c3-JASS	Quinua	Moya	JASS	Presidente	2/27/2009
CARE	C1-d3-c3-ACS	Quinua	Moya	ACS	Promotor	2/18/2009
CARE	C1-d3-c3-Madres6	Quinua	Moya	Madres	6 madres	2/28/2009
CARE	C1-d3-c4-JDC	Quinua	Nueva Esperanza	JDC	Presidente	3/2/2009
CARE	C1-d3-c4-ExJDC	Quinua	Nueva Esperanza	JDC	Ex-presidente	3/6/2009
CARE	C1-d3-c4-JASS	Quinua	Nueva Esperanza	JASS	Tesorero	3/2/2009
CARE	C1-d3-c4-ACS	Quinua	Nueva Esperanza	ACS	Promotora	2/24/2009
CARE	C1-d3-c4-Madres9	Quinua	Nueva Esperanza	Madres	9 madres	3/1/2009
CARE	C1-d4-c5-Municipalidad	Luricocha	Pampay	Municipalidad	SubGerente de Desarrollo Social	3/12/2009
CARE	C1-d4-c5-CS	Luricocha	Pampay	CS	Obstetriz	3/14/2009
CARE	C1-d4-c5-JDC	Luricocha	Pampay	JDC	Presidente	3/11/2009
CARE	C1-d4-c5-JASS	Luricocha	Pampay	JASS	Presidente	3/13/2009
CARE	C1-d4-c5-ACS	Luricocha	Pampay	ACS	2 promotoras	3/14/2009
CARE	C1-d4-c5-Madres5	Luricocha	Pampay	Madres	5 madres	3/17/2009
CARE	C2-d5-c6-7-Municipalidad	Asuncion	Asuncion	Municipalidad	Jefe de la Unidad Tecnica	6/8/2009
CARE	C2-d5-c6-7-MunicipalidadSalud	Asuncion	Asuncion	Municipalidad	Regidor de la Comision de Salud y Medio Ambiental	6/9/2009
CARE	C2-d5-c6-7-MunicipalidadAgro	Asuncion	Asuncion	Municipalidad	Responsable del Area de Agropecuaria y Recursos Naturales	6/11/2009
CARE	C2-d5-c6-7-CS	Asuncion	Asuncion	CS	Responsable del Area de Nino, Responsable de PROMSA	6/17/2009
CARE	C2-d5-c6-7-APROMSA	Asuncion	Asuncion	APROMSA	Presidente	7/13/2009
CARE	C2-d5-c6-JASS	Asuncion	Asuncion	JASS	Tesorero	6/9/2009
CARE	C2-d5-c6-ACS	Asuncion	Asuncion	ACS	Promotora de salud	6/11/2009
CARE	C2-d5-c6-Madres5	Asuncion	Asuncion	Madres	5 madres	6/14/2009
CARE	C2-d5-c7-Gobernabilidad	Asuncion	Chuachi	Gobernabilidad	Teniente Gobernador	6/22/2009
CARE	C2-d5-c7-JASS	Asuncion	Chuachi	JASS	Presidente (cont.)	6/20/2009
CARE	C2-d5-c7-ACS	Asuncion	Chuachi	ACS	Promotor de salud	6/20/2009
CARE	C2-d5-c7-Madres6	Asuncion	Chuachi	Madres	6 madres	6/25/2009
CARE	C2-d6-c8-Municipalidad	San Juan	San Juan	Municipalidad	Gerente Municipal y Responsable de Desarrollo Economico	7/2/2009
CARE	C2-d6-c8-CSPromsa	San Juan	San Juan	CS	Responsable de PROMSA (cont.)	6/25/2009
CARE	C2-d6-c8-CSNutricion	San Juan	San Juan	CS	Responsable de ENSI (4 cont.)	6/30/2009
CARE	C2-d6-c8-JDC	San Juan	San Juan	JDC	Presidente	6/29/2009
CARE	C2-d6-c8-JASS	San Juan	San Juan	JASS	Presidente	6/30/2009
CARE	C2-d6-c8-ACS	San Juan	San Juan	ACS	Promotora de salud	6/27/2009
CARE	C2-d6-c8-Madres4	San Juan	San Juan	Madres	4 madres	7/1/2009
CARE	C2-d7-c9-MunicipalidadAgro	Chetilla	Chetilla	Municipalidad	Responsable del Area Agropecuaria (cont.)	7/9/2009
CARE	C2-d7-c9-MunicipalidadElectric	Chetilla	Chetilla	Municipalidad	Asistente de Administracion de Electrificacion	7/11/2009
CARE	C2-d7-c9-PSTecnica	Chetilla	Chetilla	PS	Tecnica en enfermeria (4 cont.)	7/15/2009

CARE	C2-d7-c9-PSEnfermero	Chetilla	Chetilla	PS	Enfermero	7/16/2009
CARE	C2-d7-c9-Gobernabilidad	Chetilla	Chetilla	Gobernabilidad	Teniente Gobernador	7/14/2009
CARE	C2-d7-c9-JASS	Chetilla	Chetilla	JASS	Presidente	7/9/2009
CARE	C2-d7-c9-ACS	Chetilla	Chetilla	ACS	Promotor de salud	7/10/2009
CARE	C2-d7-c9-Madres4	Chetilla	Chetilla	Madres	4 madres	7/14/2009
UNICEF	U1-d1-c1-3-Municipalidad	Chinchaypujio	Paucarcoto	Municipalidad	Coordinador del PVL	8/6/2009
UNICEF	U1-d1-c1-3-PS	Chinchaypujio	Paucarcoto	PS	Enfermera	8/15/2009
UNICEF	U1-d1-c1-JDC	Chinchaypujio	Paucarcoto	JDC	Presidente	8/6/2009
UNICEF	U1-d1-c1-ACS	Chinchaypujio	Paucarcoto	ACS	Promotor de salud	8/9/2009
UNICEF	U1-d1-c1-ExACS	Chinchaypujio	Paucarcoto	ACS	Ex-promotor de salud	8/7/2009
UNICEF	MADRES5	Chinchaypujio	Paucarcoto	Madres	5 madres	
UNICEF	U1-d1-c2-JDC	Chinchaypujio	Ocra	JDC	Presidente	8/19/2009
UNICEF	U1-d1-c2-ACS	Chinchaypujio	Ocra	ACS	Promotor de salud	8/11/2009
UNICEF	U1-d1-c2-Madres4	Chinchaypujio	Ocra	Madres	4 madres	8/19/2009
UNICEF	U1-d1-c3-JDC	Chinchaypujio	Huambomayo	JDC	Presidente	8/15/2009
UNICEF	U1-d1-c3-ACS	Chinchaypujio	Huambomayo	ACS	Promotor de salud	8/13/2009
UNICEF	U1-d1-c3-ExACS	Chinchaypujio	Huambomayo	ACS	Ex-promotor de salud (cont.)	8/14/2009
UNICEF	U1-d1-c3-Madres4	Chinchaypujio	Huambomayo	Madres	4 madres	8/23/2009
UNICEF	U1-d2-c4-7-Municipalidad	Marangani	Hanccohocca	Municipalidad	Coordinador del PVL (cont.)	9/7/2009
UNICEF	U1-d2-c4-6-CS	Marangani	Hanccohocca	CS	Enfermera (cont.)	9/3/2009
UNICEF	U1-d2-c4-JDC	Marangani	Hanccohocca	JDC	Presidente	9/3/2009
UNICEF	U1-d2-c4-ACS	Marangani	Hanccohocca	ACS	Promotor de salud	9/3/2009
UNICEF	U1-d2-c4-Madres3	Marangani	Hanccohocca	Madres	3 madres	9/10/2009
UNICEF	U1-d2-c5-JDC	Marangani	Ccaycco	JDC	Presidente	9/9/2009
UNICEF	U1-d2-c5-ACS	Marangani	Ccaycco	ACS	Promotor de salud	9/10/2009
UNICEF	U1-d2-c5-Madres4	Marangani	Ccaycco	Madres	4 madres	9/18/2009
UNICEF	U1-d2-c6-JDC	Marangani	Huayllapunlo	JDC	Vice presidente	9/14/2009
UNICEF	U1-d2-c6-ACS	Marangani	Huayllapunlo	ACS	Promotora de salud	9/13/2009
UNICEF	U1-d2-c6-Madres4	Marangani	Huayllapunlo	Madres	4 madres	9/15/2009
UNICEF	U1-d2-c7-PS	Marangani	Quisini	PS	1 enfermera, 1 tecnica en enfermeria	9/17/2009
UNICEF	U1-d2-c7-ACS	Marangani	Quisini	ACS	Promotor de salud	9/19/2009
UNICEF	U1-d2-c7-ExACS	Marangani	Quisini	ACS	Ex-promotor de salud	9/19/2009
UNICEF	U1-d2-c7-Madres5	Marangani	Quisini	Madres	5 madres	9/21/2009